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Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

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GRAND RAPIDS, MICH., JANUARY, 1918

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bacterial vaccines discussed. The section on the treatment of certain of the acute infectious diseases, and particularly acute anterior poliomyelitis, with the serum of convalescents and normal persons, was amplified; blood transfusion is included. Special attention is devoted to chemotherapy. The toxicity of salvarsan and its congeners and the reactions following their administration are included and discussed. The subject of bacterial chemotherapy, which promises much in the future, was amplified from the theoretic and technical viewpoints. The text is fully illustrated.

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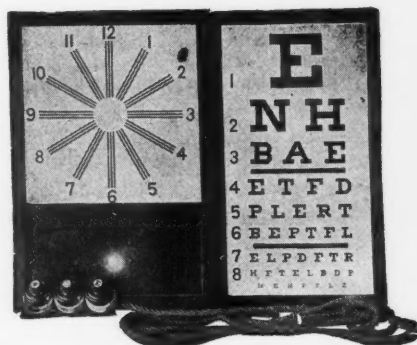
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No. 1

Original Articles

THE TREATMENT OF ERYSIPELAS.

FRANK BURR TIBBALS, M.D.
DETROIT, MICH.

I have long wanted to write a medical paper which would be not only non-scientific but even free from any pretense thereof. My opportunity has now come and I grasp it effusively. The absence of so many of our scientific leaders, in government service, may compel you to listen to worse things before the war is over. Few men are better qualified to speak of the subject matter of this paper than myself for I approach it from the standpoint of considerable experience as attending physician, supplemented by the viewpoint of a very sick and very 'batty' sufferer from the disease. As many of you know, I have taken some of your medicine. The cream of the profession, comprising surgeons, internal medicine experts, alienists, nose and throaters and pediatricians, gathered around my bedside. I do not remember any obstetricians or syphilographers, but with these exceptions all the specialties were ably represented. I enjoyed these many visits from my medical friends and am deeply grateful for their kindness and solicitude, but in absolute fairness to the Science Healer who gave me absent treatment I must admit that his treatment seems fully as efficacious as yours, and much more pleasant to take. Inasmuch as I have followed a certain line of treatment for fifteen years, without seeing a patient dangerously ill or a single autogenetic recurrence, I cannot but wonder if my experience is a fortunate one only, or whether the rank and file of the profession are not familiar with my specific.

Erysipelas is a definite infection of the skin and superficial tissues due to the streptococcus. The constitutional symptoms are those common to the infectious diseases, malaise, fever, de-

lirium perhaps, if the temperature is high. The local symptoms are heat, redness and swelling, a red line of inflammation marking the spread of the infective process. The routine treatment in common use is that of tonics and alternatives, such as quinine and iron, with whatever pet application each physician may favor to control the extension of disease. Probably ice and ichthyol, in 25 per cent. solution with alcohol and ether, or with vaseline as an ointment, are the best topical applications. With this routine treatment it becomes a question of the individual resistance, i. e.; the survival of the *fittest*. That the disease is not more generally fatal may be attributed to the self limiting nature of the infecting organism rather than to any benefit to be derived from such routine treatment. I was packed in ice until I shall always dread the winter; was painted enameled and polished, and quinned internally, and after thirty days had recovered sufficient strength to get down stairs, though with difficulty. As I have never seen an erysipelas patient with so much toxemia and so slow a convalescence my belief in my own method of treatment is correspondingly strengthened.

About fifteen years ago my wife had facial erysipelas. For three days she had a temperature of 105½ with rapid spread of infection over the entire face and into the scalp. We then began the use of antistreptococcic serum, in 20 cc. doses every eight hours. After the fourth injection (a total of 80 cc.) the temperature dropped to normal within a few hours and she made a very rapid convalescence. One might think this really wonderful result an accident but for the fact that this has been my invariable experience in a total of about seventy-five cases. It may be admitted that the serum has proven of only occasional value in general streptococcic infections but I believe the antitoxic action of this serum in the special strain causing erysipelas is as specific as is antitoxin in diphtheria.

The whole problem of recovery in infectious disease is that of the early development

of antibodies in sufficient amount to kill the invading organisms and prevent production of their toxic products. Hence the use of serums which carry antibodies in sufficient amount to materially aid nature in the fight is the only logical treatment of infectious disease. We admittedly have, in antitetanic and antityphoid serums invaluable prophylaxis, and in diphtheria antitoxin and, probably, the new gas bacillus serum invaluable treatment. A more general use of antistreptococcic serum in erysipelas will prove or disprove my claim as to its efficacy and that is my purpose in calling attention to the matter. Little has been written on the subject and that conflicting. In my opinion the reason for any failure with this serum in erysipelas is insufficient dosage. Just as many men have expected to cure syphilis with one dose of salvarsan, so have many others tried a single dose of 10 or 20 cc. of this serum and discontinued it when no marked effect was produced.

My method is to inject, preferably into the breast, 20 cc. every eight hours until decided improvement occurs. This is usually indicated by a sharp drop in temperature, to normal or nearly so. I have never had to use over 80 cc. I begin the injections as soon as feasible after the diagnosis is certain. I have never seen a recurrence, a dangerously sick patient, or a long convalescence, where serum in sufficient dosage has been given. One may expect, in perhaps 25 per cent. of the cases, the same urticarial manifestation as follows the introduction of any alien serum. This unpleasant symptom, while a drawback, does not justify us in neglecting this remedial agent any more than the expectation of the same disturbance would excuse us from using antitoxin.

In the few cases in which I have tried vaccines in erysipelas I have found them inert. The best evidence of their inefficiency was a prompt recurrence in two cases. The first case was seen during the summer of 1916. The man had consulted another physician the afternoon before for a swollen ear. When I saw him the following morning a temperature of one degree lead to a provisional diagnosis of erysipelas which became positively clear by afternoon. On my call the next morning I met the other physician outside the house and had him come in with me, and left the patient in his care over Sunday, with the understanding that he was to use serum. On my return Monday I found vaccine, not serum, had been used, and curious to see its effect continued it. The

case ran the usual course of eight or nine days of fever, subsided for a few days and began over again in a most virulent way. Fifty cc. of serum checked it at once and he recovered rapidly without further recurrence.

The second case occurred in my own family as a direct infection from me, and had three distinct recurrences, at intervals of two or three weeks. The first attack was treated with quinine plus local applications, the second likewise plus vaccines, the third with serum only, begun twenty-four hours after the inception of the attack. An initial dose of 20 cc. was given, followed by two more doses of 10 cc. at intervals of twelve hours. Shortly after the last dose all symptoms subsided and the nurse left a day later because there was nothing for her to do. This attack began with temperature of 104 F. None of the toxemia followed this last attack which marked all the others. Complete recovery in four days certainly proved the efficacy of the serum, although a sharp urticaria developed a week later. As this patient had been given the serum fifteen years before some hesitancy was felt as to possible danger of anaphylaxis but our fear proved groundless.

The idea rather commonly held by the profession that erysipelas is a self limited non-fatal disease is, I think, an unfortunate and erroneous one, because the conclusion follows that active or specific treatment is not necessary in a self limited infection which always recovers. While I have not, myself, seen a fatal case, I know of a considerable number. There is sufficient hazard in every case of the disease to make it the duty of every practitioner to utilize any method of treatment which facilitates recovery, and that the use of antistreptococcic serum, in early and sufficient dosage, greatly shortens the illness and accelerates convalescence is, in my experience, an absolute certainty.

CAUSES OF ABORTION.

JAMES E. DAVIS, A.M., M.D.
DETROIT, MICH.

The causes of abortion may be classified under:

1. *Criminal Provocation*: Direct or indirect.
2. *Maternal*: Pelvic diseases, poisons in the blood, affections of the circulatory system, nervous system factors.
3. *Paternal*: Disease, age.
4. *Foetal*: Placental disease, general tissue changes from disease and death.

It is to be presumed that not less than 50 per cent. of all abortions are criminally provoked, and if the indefinite number incident to pathological changes from previous abortions and miscarriages be added or placed in the indirect class, a higher proportion must necessarily be recorded.

A marked reticence obtains with many patients who are asked for their history concerning abortions and miscarriages and all obtainable statistics are compiled from data which deals largely with incomplete abortion, for it is in this type of cases medical and surgical relief is sought. Titus found 82 per cent. of a series of criminal abortions at the Johns Hopkins Clinic were incomplete, and 78.05 per cent. of this same series were infected, streptococcic infections occurring in 34.37 per cent of these cases.

It can be assumed that the factor of infections alone from previous abortion predisposes to pathological changes in the uterus and adnexia that will be directly causative of repeated abortions.

In the provocative types of abortion, the decidua reflexa may be punctured from without, through instrumentation or ruptured from within by pressure of the violently contracting uterine muscle thus compelling the expulsion of the embryo from the sac to the free uterine cavity without the cervix yielding. The result therefrom being the so-called missed abortion of Vermehren, (if retained for ten weeks or not more than thirty-one weeks), or the liquor amnii and embryo are more or less promptly emptied from the uterus leaving the secundines for a second stage delivery.

Bonnaire tersely gives the French interpretation of the delivery of abortion products by saying, "abortions occur *en bloc* during the first few weeks of pregnancy, while from this time forward they occur more often in two parts until at the fifth month abortion *en bloc* is almost unknown. Criminal abortion, occurring so often in this period is almost always in two parts." When in the third or fourth month there has been a preliminary opening of the ovum and the secundines are retained Bonnaire believes rather than suspects that there has been a culpable intervention.

Burns has observed that in all cases the placenta is retained much longer after the expulsion of the child in abortion, than in labor at the full time. In rare instances the whole ovum is expelled entire and in an excellent state of preservation.

The insufficiency or lack of preparation of the uterine muscle by hypertrophy and hyperplasia of its elements is more often the cause of retention of the afterbirth than the adherence of the membranes to the uterine wall. This is especially true of the cervix, for as Bonnaire says, "it is not prepared sufficiently by softening for the effacement and the dilatation when it is surprised by a travail so precocious."

The uterus permits the escape of the ovum in one of three ways:

First, by regular effacement from above downward, like a spinning top; the cavity levelling itself with that of the uterus.

Second: In primipara the external os may remain stiff and the ovum lodges in the inferior segment of the cervix.

Third: In multiparae with hard, scarred cervixes effacement of the cervix may not be possible and contractions may force the egg through the cervix without shortening. This occurs in the hemorrhagic type during the first few weeks.

If the interval between the delivery of the two parts of an abortion exceeds 24 hours, there is produced the "complication mère," (complication mother) of the abortion. This complication mother has two daughters: hemorrhage and infection.

The available statistics upon criminal abortion show an alarming increase in the number of cases occurring from year to year. Doleris in a series of 103,830 pregnancies in eleven French hospitals records 8.2 per cent. of abortions, and during the last six years of this period the number of abortions were tripled.

Bonnaire points to an increase from 0.5 per cent. to 23 per cent. in 25 years, of abortion from all causes and attributes the enormous change to alcoholism, tuberculosis and syphilis.

Hirst says there is one abortion to every four or five deliveries at term. Whitehead has calculated that at least 90 per cent. of all married women have aborted.

Bacon estimates 20 to 25 per cent. of all pregnancies terminate in abortion. It would appear that the medical profession which is entrusted with the responsibility of human life and its health is not fulfilling its obligation to the ignorant, uninformed and criminally disposed individuals who in so many instances kill or cause to be killed so many of the unborn young.

There is a most frequently expressed belief upon the part of mothers and fathers that viability marks the beginning of life and it seems

that all too infrequently the physician consulted does not discharge his responsibility by most emphatically teaching the truth to these who either do not know or do not want to know. It is the plain duty of physicians to vividly portray the consequential pathology of abortion.

It should be emphasized again and again that a very large number of all abortions in which there are retained secundines and infection, are criminally provoked.

Under the maternal, paternal and foetal causes of abortion syphilis is a most frequent factor. The wide variation in the figures given by different writers concerning its frequency arises from the difficulties of its early recognition.

The tissues of abortion products are difficult to recognize while those from a miscarriage are easily diagnosed. Warthin has demonstrated that the tissues, if stained promptly after death with the Levaditi stain, may show the spirochetes whereas after some hours have elapsed recognition is impossible.

The placenta was found by Frinches to be infected in 25 per cent. of his cases. Mracek affirms that in 50 per cent. of these cases the impregnated ovum is not infected early.

The statistics of Sandberg, Ebeler, Commandeur, Dührssen, Polak, Franz, McPherson, Her-gott, Lockner, Rentoul, Doleris, Fabreet, Rhen-ter, Titus, Brion, Dorland, Evans and Pauli show that in 657 syphilitic women there were 35 per cent. of abortions.

There are doubtless many tissue changes in the maternal and foetal organisms that are remote results of syphilis yet classification is given under some other cause as in dwarfed and deformed embryos and in metabolic insufficiencies. In cases where a clinical history is obtained of multiple abortions and severe hemorrhages occurring from the third month onward and the histology is that of the conception product separated through the spongy layer of the decidua; with interglandular bridges torn through in certain areas and consisting of necrotic tissue, the blood vessels supplying these bridges showing actual thrombosis, in others narrowing of the lumen by active proliferation of the endothelial lining and fibrous tissue cells surrounding the walls, we are quite certain of a diagnosis of syphilis.

Unintentional abortion is very frequently caused by syphilis; Ruge estimates that 83 per cent. of the premature labors and still births are due to this cause.

Young in an excellent monograph studied the changes incident to early pregnancy and pointed

out with great clearness the vascularization changes induced by the chorionic cell substance. And herewith one can easily comprehend the effect of syphilis because of its frequent elective involvement of blood vessels and interception of normal physiological changes at this critical formative period.

Decidual endometritis is a cause of abortion for 52 per cent. of infected cases and 68 per cent. of uninfected cases, the occurrence of infection in these cases is regarded as an incidental. Titus found 62.22 per cent. of his uninfected cases of abortion had decidual endometritis and 30.13 per cent. had retropositions of the uterus. Abnormal antepositions were found in only 2.74 per cent. and adherences from tubo-ovarian masses in 8.22 per cent. In all he found 41.19 per cent. of his cases had uterine malpositions. In the same series infections occurred in 45.06 per cent. of the cases or in the ratio of one in every 2.2 cases. Mortality occurred in 52.27 per cent. of the infections from the streptococcus and there was no mortality from any other type of infection.

Uterine retropositions are the most frequent cause of spontaneous abortion; the resulting decidual endometritis being a secondary matter and possibly only an exciting cause while the retroposition is the predisposing factor. Menstrual waves occurring at the time of expected menstruation are the periods of greatest liability to abortion.

The staphylococcus, streptococcus and *B coli* are the most frequent organisms found in the acute infections of the uterus and, as previously noted, are associated with decidual endometritis and retropositions. A chronic endometritis from a retained decidua of a previous abortion which has been improperly treated and a retroposition of the uterus will make a very likely predisposition to abortion. Titus found 54 per cent. of 267 cases of abortion gave a history of from 1 to 8 previous abortions.

The changes in the decidua observed in abortion are hypertrophy, atrophy, congestion and hemorrhage, the last occurring most frequently. Acute endometritis is observed more frequently than is the chronic form.

It has been previously mentioned that displacements of the uterus and deciduitis are very frequently associated. Rentoul has observed that retroflexions, retroversions and prolapse are of importance as causative factors of abortions in the order named.

Considering other maternal cause of abortion: lacerations of the perineum have been ob-

served in 14 per cent. of cases recorded by different writers. Lacerations of the cervix according to Wells do not cause a very great number of abortions. Fifty-six women who were not lacerated aborted seventy-eight times, and 138 women who were lacerated aborted 270 times; the proportion here shown is 1.3 : 1.9.

Cancer and intrauterine tumors are frequent causes of abortion. Gonorrhea is not as frequently a direct cause of abortion as is frequently believed but indirectly through changes provoked in the uterus and adnexia it is a very potent cause.

Poisons in the maternal blood from fevers, such as smallpox, pneumonia, scarlatina, (four-sevenths of all cases), cholera, measles, typhoid, etc. are frequently provocative of abortion, as is also metallic and vegetable poisons like lead, mercury, ergot, quinine, strychnine and alcohol. The poisons from albuminuria and jaundice are frequently abortifacients.

Of the affections of the nervous system chorea, epilepsy shock and violence produce abortion most frequently.

Epidemic abortions have been recorded by Valpeau in 1811, 1816 and 1821. Other writers have described epidemics arising from infection by the streptococcus and the B abortus of Bang, which have been milk born.

The foetal causes of abortion are most often from placental changes as congestion, placentitis sclerosis, tumors, edema, fatty degeneration, myxoma fibrosum, p. apoplexy, cystic degeneration, syphilis, endometritis, placentalis villosa, hydramnios, inflammations of the cord with knots and torsion, death and degenerative changes in the fetus.

The paternal causes of abortion are mainly syphilis, gonorrhea, albuminuria, lead poisoning and advance age.

Rentoul records twenty-five men examined at the age of 60 and only seventeen had spermatozoa, of seventy-five who were 70 years of age only forty-two had spermatozoa. At the age of 80 there were only nineteen of fifty-one men who had spermatozoa and four at 90 years of age had no spermatozoa.

PERSONAL OBSERVATIONS OF THE CARREL-DAKIN TREATMENT OF INFECTED WOUNDS.

CAPTAIN ALEXANDER CAMPBELL, M.D., M.R.C.
GRAND RAPIDS, MICH.

During the last few months the War Department through the Surgeon General's office has arranged a number of courses of instruction for

officers of the Medical Reserve Corps. This instruction consists of an intensive study of the causes, character and management of war diseases and war injuries, the magnitude and virulence of which exceed those of any other war in the history of the world.

One of the most important and instructive courses given is that on the Carrel-Dakin treatment of infected wounds under Dr. Alexis Carrel at the War Demonstration Hospital of the Rockefeller Institute. Nearly all the patients in this hospital are treated by Dakin's solution, or some other form of chlorinated antiseptic.

It has been the writer's privilege to have recently completed this course of instruction and it seemed to him that first hand observations, rather than reflected ones, might be of interest to other surgeons who have not actually acquainted themselves with the details of the treatment as taught and practiced by Carrel himself.

It is difficult to describe in a short paper a treatment which is surrounded and fortified by so many experiments of scientific interest, for nearly every detail is the result of laboratory research combined with a delicately adjusted and accurate surgical technic. Each officer taking this course of instruction is required to perform many of these experiments himself.

Dr. Carrel was in charge of the course of instruction and gave daily clinical demonstrations and lectures exhibiting patients who were being treated with Dakin's solution and other antiseptics. His keen and close scrutiny of a wound and his observations on every little detail pertaining to the technic of his treatment was very illuminating, while his surgical deductions impressed one that he is a man with sufficient scientific ability, logic and imagination to entitle him to blaze the trail along some of the darkened pathways that lead to surgical progress.

A definite program of lectures and demonstrations was arranged on the principles and technic of wound sterilization, and practical experience was given the officers concerning such work as preparing and testing Dakin's solution, observing with experimentations its bactericidal effect both *in vivo* and *in vitro*, taking of smears from wounds, staining and counting the organisms, and so on.

We observed most interesting experiments on the action of Dakin's solution on the bacillus Welchii which has been so prevalent during the present war. Bull's experiments led him to believe that death from the bacillus Welchii

is not produced by a blood invasion but by powerful toxins produced in the growth of the bacilli in the tissues of the body, and he demonstrated at the Rockefeller Institute in our presence that Dakin's solution will neutralize this toxin successfully. He has produced an antitoxin which he believes will prevent gas gangrene.

Lectures and demonstrations were also given on the mechanical cleansing, surgical treatment and secondary sterilization of wounds, and the use of the overhead Balkan frame suspension apparatus for the immobilization, suspension and continuous extension of limbs, all these in combination with the use of Dakin's solution.

When one sees the Carrel treatment of infected wounds he is surprised to realize that its principles have not been grasped before. It is a singular fact that at the commencement of the present war wounds were almost as badly infected as during our civil war and Carrel well states that until recently practically no systematic research has been carried out with a view to improvement in the treatment of wounds and that in spite of the toil of many surgeons wounds suppurate to-day as freely as ever. It is amazing that while a half a century ago Lister discovered that carbolic acid disinfected wounds, until recently there has never been any accurate way of determining the effect of the concentration of antiseptics when applied to tissues, and ever since Lister's time antiseptics of all kinds have been used without any accurate way of determining what value, if any, they possessed.

This to the writer's mind in the key note of the Carrel-Dakin treatment, namely the application to an infected wound of an antiseptic of known strength that will sterilize the wound bacteriologically with a minimum amount of irritation, and that if a wound is bacteriologically sterile it will heal in spite of and not because of any antiseptic that may be applied to it.

So far as the writer is aware Dakin and Carrel were the first who accurately tested the strength of concentration of any number of bactericidal substances that were to be used on wounds. In 1915 they tested many substances and realized that the problem consisted in using an antiseptic on the principle enunciated above, namely that it should have sufficient antiseptic power and that it should not irritate the tissue. Too much credit cannot be given to Dakin, an American chemist, who after examining two hundred different substances came to the conclusion at that time that a solution of hypo-

chlorite of soda of a certain strength would render wounds sterile and produce a minimum amount of irritation.

In order to carry out this treatment it must subscribe to the following requirements: First, Dakin's solution must be accurately made and carefully and frequently titrated. Second, it must be administered according to the Carrel technic in every detail. Third, bacterial examination of the wound must be made at frequent intervals to determine the effect of the antiseptic. In order to carry out this technic a vigilance and co-operation of patient, nurse and physician must be continuous. No one should criticize this treatment without thoroughly familiarizing himself with it for much criticism has undoubtedly arisen from surgeons who really have never seen it properly used.

Carrel and Dakin's experiments demonstrated that a solution of hypochlorite of sodium whose content of hypochlorite was between 0.45 and 0.5 per cent. and which was very slightly alkaline was the ideal preparation and it was this preparation that was used at the Rockefeller Institute as a routine treatment. There are different methods of preparing this solution, but the method used at the Carrel Clinic was a simple one which consisted in the action of chlorine on sodium carbonate. A certain amount of chlorine is run into a solution of sodium carbonate and by use of a simple apparatus a very accurate solution can be made in a few minutes and when titrated it will show the proper amount of hypochlorite content. The alkalinity of this preparation is very carefully tested, not only with powdered phenolphthalein but with an alcoholic solution of the same drug. Too much emphasis cannot be placed on the point that Dakin's solution must neither be too alkaline nor too acid.

An electric manufacturing concern in New York City has devised a chlorine generator, by which chlorine in tanks under pressure is used in making Dakin's solution. Arrangements will be made so that these tanks of chlorine can be procured for the army in Europe. Inasmuch as this is the simplest and most accurate method of making the solution, it is probable that it will entirely supplant the method of making it from bleaching powder which is so unstable in its content of active chlorine that it is necessary to titrate every particle that is used. No matter what method is employed in making Dakin's solution, it must be titrated so that the percentage of hypochlorite can be estimated.

Assuming that the solution is absolutely cor-

rect as to its reaction, the next important desideratum is its application to the wound in an appropriate manner.

In their routine work at the demonstration hospital, wounds are cleaned both mechanically and chemically before the Dakin solution is applied. The wounds are minutely examined and cleansed with iodine, and the openings are neatly trimmed and muscular tracts are laid neatly open and necrotic and bruised tissues are carefully excised with as little traumatism as possible. Complete hemostasis is absolutely and completely established because Dakin's solution does not dissolve blood clots. The toilet is completed by washing the wound and skin with neutral soap in the form of a solution of oleate of soda and lastly the wound is dried with cotton pledgets. Cotton is used because it causes less traumatism to the delicate epithelial cells.

Counter opening is rarely employed as a matter of drainage as the object of the treatment is to fill up cupshaped cavities with the solution so that every surface will be in contact with the antiseptic. Bacteriological smears are taken from the depth of the wound and from the most infected part and whatever necrotic tissue is found the bacterial flora is most extensive. The wound is never sutured until the bacterial count is practically nil.

Chemical sterilization of the wound is brought about by conducting the antiseptic liquids through small perforated rubber tubes which go into the various pockets and recesses of the wound. From a reservoir by a system of rubber and glass branched tubing there is equalized distribution of the solution to every part of the wound, while cup-shaped wounds are kept filled by the use of a fenestrated tube which lies loosely in the wound, reaching the bottom of the cavity. It must be accentuated that the wound should always be kept moist for Dakin's solution is very unstable and unless continuously renewed it will be rendered inert by the secretions.

Each wound is treated according to its extent and location and tubes of different length are used and in some instances Turkish toweling is applied over the perforated part of the tube so that the liquid can be spread equally over the surface as it escapes from the minute holes in the distributing tubes. These tubes are maintained in their proper position by the use of adhesive plaster which attaches them to the skin, and the surrounding skin is covered with a preparation of vaseline and paraffin

gauze which is applied to prevent irritation. It has been observed that some patients have an idiosyncrasy toward Dakin's solution, complaining of slight irritation each time the fresh solution is applied to the wound; in such cases a substitute antiseptic should be used. When the tubes are properly placed they are connected with a reservoir by a long rubber tubing of a certain caliber controlled by a cut-off. The height of the reservoir should be from fifty to one hundred cubic centimeters above the level of the bed. The point must be accentuated that one should not irrigate the wound with Dakin's solution, but that it should be constantly moistened and bathed with it, but not flooded. Probably the average amount in twenty-four hours is not more than two hundred cubic centimeters although a thousand may be used without harm if the size of the wound warrants it. There has been devised an electric clock and an electromagneto distributing apparatus by which a definite amount of Dakin's solution is automatically regulated as to time and quantity. We observed that wounds which at the daily dressing were not moist enough did not look as healthy as those that had received a proper amount of the antiseptic.

The tubes are applied directly to the wound without the intervention of any gauze packing. It was observed that when gauze packing was used that it became so saturated with the secreted plasma that it prevented the antiseptic from getting proper contact with every part of the wound. Pieces of gauze saturated with Dakin's solution are placed upon the wound over the tubes and suitable sized pads containing cotton wool or sphagnum moss are placed over the dressing. These pads encircle the limbs if the wound is in an extremity and are caught in front either with safety pins or wooden clothespins. It is an unusual thing to see a bandage used at the Carrel Clinic.

A final survey is made of the entire arrangement of the tubes and dressings before the surgeon feels satisfied that the patient can be left to the care of the nurse for the few hours that intervene before his next visit.

Bacteriological examination of wounds is made frequently and consists in scraping lightly the surface of the wound without producing hemorrhage, selecting that portion which is usually the most infected. Necrotic tissue, exposed tendons and bones are very rich in bacterial growth, and it is always best to take a smear from the part of the wound where one suspects the greatest amount of infection. The smear

is heated and stained and either methylene blue or carbol thionin may be used. We observed that the latter stain was the more satisfactory. Sixty microorganisms per microscopic field were designated as an infinite number and when a wound contained only one or two microbes in five fields it was considered sterile. Suitable charts indicate the bacterial curve and the surgeon reads it with the same interest he would a temperature record. By counting the microbes every two or three days the progress of sterilization can be followed. In the laboratory it was observed that there was a direct relation between the bacterial count and the administration of the hypochlorite solution.

We observed patients with very virulently infected wounds improve in their general appearance very noticeably after a few days' treatment. The improvement in these patients reminded one of that observed in typhoid patients in the afebrile stage of convalescence. We learned that one must depend upon the microscope to determine the infectivity of a wound.

When wounds become surgically sterile, according to bacteriological examination, they can be closed by suture or skin graft, and secondary suture was frequently done within three days after the wound was rendered sterile.

When it is necessary to use pressure to close the lips of a wound, elastic traction is used and bootlace hooks arranged in corset like fashion are used. We saw a number of cases of badly infected compound fractures of limbs treated

with Dakin's solution with most excellent results. The patients with these fractures were put to bed and the limb suspended in a Balkan frame which is an overhead apparatus in which the injured limb can be suspended so that traction and extension can be continually maintained, the limb being placed in a sort of hammock and being equilibrated by the use of weights and pulleys. It was a simple matter to dress these limbs when they were thus suspended and then to apply Dakin's solution.

CONCLUSIONS.

In reflecting upon the observations made upon the Carrel treatment with Dakin's solution the following points stand out most prominently:

1. This treatment when properly followed will make it possible for a wound to heal more quickly than any other method with which the writer is acquainted.
2. Dakin's solution will dissolve necrotic tissue and is an excellent deodorant, but it will not dissolve blood clots.
3. It will dissolve animal ligatures, but has no effect on silk, cotton or silkworm gut ligatures.
4. Infected wounds should be healed and closed under bacteriological control.
5. The Carrel method is not particularly complicated to one trained in its technic. It is a treatment that should be commonly used in civil hospitals.

For some time Dr. Alexis Carrel has been using, in the War Demonstration Hospital of the Rockefeller Institute, for the cleansing of wounds a liquid sodium soap—a neutral sodium oleate. This has been employed with most satisfactory results.

This soap is used to scrub cut an infected wound. A little of it is applied to a pledget of cotton, held with a dressing forceps, and the wound scrubbed with it, more soap being applied to the cotton from time to time until there is a good lather. The wound is scrubbed in this way from the center to the periphery, the soap finally being washed away with water, after which the indicated antiseptic is applied, as, for instance, Chlorazene Surgical Cream.

Neutral Sodium Soap, prepared to meet Doctor Carrel's indications, has been placed on the market by The Abbott Laboratories, Chicago, and is now offered to the medical profession.

K-Y Lubricating Jelly.—The Council on Pharmacy and Chemistry reports that K-Y Lubricating Jelly (Van Horn and Sawtell, New York) originally

advertised as a lubricant for instruments and the hands, is now also recommended as a therapeutic agent. The Council held K-Y Lubricating Jelly in conflict with Rules 1, 4, 6 and 10 (*Jour. A.M.A.*, Sept. 29, 1917, p. 1102).

Alcresta Ipecac.—This preparation of ipecac was admitted to New and Nonofficial Remedies in 1915. Recently claims have been advanced for this preparation which were not contemplated at the time of its acceptance and which appeared improbable and unwarranted in the light of the known properties of ipecac. The Council on Pharmacy and Chemistry brought these extravagant claims to the attention of Eli Lilly & Co., the proprietors of Alcresta Ipecac. As Lilly & Co. would neither discontinue nor modify these claims and did not submit any evidence to warrant them, the Council announces that it has been obliged to delete this proprietary from New and Nonofficial Remedies (*Jour. A.M.A.*, Oct. 20, 1917, p. 1373).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meetings, October and November, 1917

The President, JAMES G. VAN ZWALUWENBURG, M.D.

Reported by REUBEN PETERSON, M.D.

REPORT OF A CASE OF CONDYLOMA LATA AND CONDYLOMA ACUMI- NATA IN A PATIENT WITH SYPHILIS AND GONORRHEA.

JOSEPH A. ELLIOTT, M.D.

(From the Department of Dermatology and Syphilology,
University Hospital, Ann Arbor, Michigan.)

This patient is a young lady, domestic, 19 years of age and single. She is an American and hails from Wheeling, W. Va. She was referred to this Department by the Department of Genito Urinary Surgery on account of a four plus positive Wassermann reaction, having been under treatment previously for condyloma acuminata and gonorrhea.

Her present trouble began about three months ago when a sore appeared on the genitalia. The lesion was painful and has persisted. About one month ago lesions appeared in her mouth and approximately six weeks ago a large number of hypertrophic lesions appeared on the vulva and about the anus. Her hair has been falling out for two months. She has noticed no deafness, no loss of weight, and has had no bone or joint pains, and no headaches. When she came under observation she had had no specific treatment.

Examination disclosed a well nourished woman of fair appearance. The scalp shows a moth eaten alopecia. The eyes are normal and the pupils react to light and in accommodation. The skin of the face and body is clean except for a general, patchy alopecia over the arms and abdomen. Both the anus and vulva are covered with many hypertrophic papules, cov-

ered with a yellowish discharge. Some of the lesions are cauliflower in shape.

Over the pillars of the fauces are numerous ulcerated lesions covered with a grayish pellicle. There is a generalized shotty adenitis. The reflexes are active. The long bones are negative.

This patient entered the Hospital with a diagnosis of condyloma acuminata, due largely to the fact that the history had been taken previous to the examination, and it was found that she had a gonorrheal vaginitis. In view of this fact, I wish to discuss the differential diagnosis between condyloma lata and condyloma acuminata. We notice here a large number of verrucous lesions. On one lip of the vagina there is a large plaque, and on the inner surface there are a few papules. The interesting feature of the case is the large group of verrucous lesions. We can best understand the differentiation between condyloma acuminata and condyloma lata by conceiving a diagrammatic picture of the two lesions in cross section. Clinically the lesions may appear very similar. Pathologically they are decidedly different. By condyloma lata we mean the moist papules of secondary syphilis. By the term condyloma acuminata we refer to the pointed lesions which are prone to occur with any vaginal discharge. In order to make the differentiation we have to do more than a superficial examination. In condyloma acuminata the epidermis is thickened and thrown into folds and there is an increase in the size of the papillae of the corium. In practically all syphilitic lesions of the skin

the epidermis remains normal, or nearly so, but there is a decided change in the corium consisting chiefly in an infiltration of plasma cells and endarteritis. This pathologic change in the corium constitutes the induration of syphilitic lesions. In condyloma acuminata there is no change whatever in the corium, but there is a marked change in the epidermis, particularly in the prickle cell layer. Therefore, instead of the normal wavy epithelium, the epithelium is thrown into great folds, as in this case. So from observation, one could not distinguish the lesions in this case from condyloma acuminata. However, if by palpating we can determine infiltration, we can say that the lesions are syphilitic.

It is rather uncommon to see lesions of the mixed type. On the other hand, it is quite common to see condyloma acuminata in patients with a chronic gonorrheal discharge. The diagnosis of a mixed lesion therefore lies in establishing the fact that there is induration, indicating an infiltrate into the corium in addition to verrucous lesions. Here we have infiltration. This case therefore is presented as an example of a mixed lesion presenting the essential characteristics of both condyloma lata and condyloma acuminata. The lesions on the labium are purely condylomata lata. Those around the anus and posterior to the fourchette are mixed lesions.

THE CLINICAL APPLICATION OF ELECTROCARDIOGRAPHY.

GEORGE EDMESTON FAHR, M.D.

(From the Medical Clinic, University Hospital, Ann Arbor, Michigan.)

Not long since I was asked by a colleague of excellent clinical and scientific training to decide by means of an electrocardiogram whether a case in which there was an undoubted lesion at the aortic orifice was complicated by a double mitral. Upon informing him that we could only get indirect evidence by this means, which would possibly weigh strongly in favor of, or against the diagnosis of a double mitral, he exclaimed, "Why I thought you could make a diagnosis of any cardiac condition with that wonderful instrument." At a scientific meeting in New York City a very short time ago. I was informed by a physician, whose name

ranks very high in our profession, that "that ten days wonder, the electrocardiogram, is beginning to play out." These two remarks represent very well the two types of appreciation which the electrocardiogram receives from the great majority of the uninitiated in the medical profession of both continents.

Both the unbounded expectations of one group and the unwarranted depreciation of the other are due to a lack of understanding of the somewhat difficult physical and complicated physiologic principles which serve as the basis for our interpretation of the curves and to a lack of acquaintance with the clinical information which the electrocardiogram can give us. The electrocardiogram has come to stay in the study of cardiac disorders and it has become an essential part of the equipment for the diagnosis, prognosis and therapy of heart disease in every modern clinic throughout the world even though every question in cardiac disease can not be answered by it. It will not be possible to go into the physical and physiologic foundations of electrocardiography this evening as I shall confine myself strictly to an attempt to acquaint you with some of the information which the electrocardiogram supplies us in cardiac disorders. But before we plunge into the subject of clinical electrocardiography let us recall to mind that the electrocardiogram is essentially a graph of the spread of the wave of electro-negativity which passes over the heart, but as this negativity is closely bound up with the excitation process, the normal electrocardiogram is really a picture of the propagation of the excitation wave from its inception in the sino-auricular node over the auricles and down the auricular septum into the auriculoventricular node and from here by way of the main branch, the right and left ventricular branches, and the outlying arborizations of the His-Tawara conduction system to all parts of the ventricular musculature. But the electrocardiogram is just as well a curve of the spread of the contraction process, for the course of the excitation wave in the heart muscles determines the course of the contraction wave. In other words, the electrocardiogram is a very direct means of examining the heart muscle. Before we examine our pathologic electrocardiograms, let us look at a normal one and review its prominent peaks and their significance.

Here is the electrocardiogram from a healthy young man who became a member of a college crew. The instrument is so calibrated that each millimeter along the ordinates equals a potential difference of one-tenth of a millivolt and the speed of the time marker which produces the ordinates is such that each scale division along the abscissae equals exactly $1/25$ of a second. The upper curve is the so-called lead I. It is obtained by connecting the right and left hand with the galvanometer. The second curve is lead II, obtained by leading off from right hand and left foot. The lower curve is lead III, left hand and left foot being attached to the galvanometer in this case. This small upright wave is the P wave. It represents the spread of the excitation wave from the sinoauricular node over the auricles in the normal heart. When the excitation process starts at some other point or travels abnormally over the auricles the size and shape of this wave changes, that is, it points downward or is diphasic. From beginning of the P wave to the beginning of this sharp group, the Q R S group, the excitation pulse is traveling down the auricular septum to the auriculoventricular node and from here through the right and left branches of the conducting system into both ventricles. We therefore have an accurate measure of the conduction time here in our curve. This small downward peak is the Q wave and corresponds to the passage of the excitation process into the region of the ventricles about the papillary muscles. This upward pike is the R wave and is produced by the excitation process in its spread over the base of the ventricles. This downward pike is the S wave, and represents the shooting of the action-negativity into the apical portions of the ventricles. This normal Q R S group changes its form and size when the conduction process is slowed up or blocked along one of the branches of the conducting system, when one of the branches is lengthened in hypertrophy of the ventricle, or when an extrasystole originates in one of the ventricles. The whole ventricle is in excitation and negative at the end of the Q R S group. Now the excitation begins to die out and as it does not diminish in all parts at the same moment certain parts become more negative than others and this last wave, the T wave, results. Normally this wave is upright because the negativity disappears last at the base of the heart. The P and T

wave are profoundly altered by vagus stimulation. The pike of the R represents the beginning of ventricular systole in the ordinary sense, diastole begins at the end of the T wave. The first heart sound comes just after the R pike, the second at the end of the T wave.

Let us first examine the typical electrocardiograms of valve lesions for, although the form of the electrocardiogram has no direct relationship to lesions at valves, yet as valve lesions are always found accompanied by changes in the size, distribution and quality of the cardiac musculature, we generally find typical and interesting changes in the electrocardiograms. Very often the electrocardiogram will furnish strong indirect evidence in the diagnosis of complicated or obscure valvular lesions at times when the state of compensation is such that typical murmurs are no longer present or percussion and X-ray are impossible.

In the endocarditic and arteriosclerotic forms of mitral insufficiency and mitral stenosis we usually get characteristic curves so that the diagnosis of a mitral lesion can usually be made from them alone. In mitral disease we have a massing back of the blood into the left auricle, the pressure at the end of diastole is greater than under normal conditions, the stretching of the muscle fiber stimulates to more powerful contraction, we get a dilated and hypertrophied left auricle. We should then expect to find an enlarged P wave in our electrocardiogram, representing this dilatation and hypertrophy.

Here is the electrocardiogram of a case of

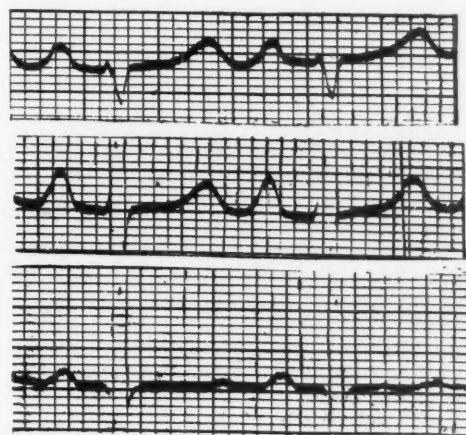


Fig. 1. Mitral Stenosis. Large P. wave. QRS group downward in lead I, upward pointing in lead III, showing right ventricular preponderance.

well compensated mitral stenosis in a young girl of 18. (Fig. 1.) You see here this enormous P wave of 4 scale divisions or $4/10$ of a millivolt. The normal P wave seldom reaches

two scale divisions. The P wave here is nearly as large as the R wave and larger than the T wave. This can only be interpreted as an expression of hypertrophy of the auricles. An enlarged P wave like this in mitral disease gives a relatively good prognosis for it shows the auricle is not fibrillating and that the cardiac impulse is formed at the normal site and is propagated over the auricles in the normal direction. An enlarged P wave can be used in the differential diagnosis of simple aortic valvular disease from aortic disease complicated with mitral failure. Large P waves are rarely found, Lewis says never, except where there is mitral disease with massing back of blood into the left auricle. The predominately downward trend of the Q R S group in lead I and the relatively high R in lead III shows a predominance of the right over the left ventricle, that is, a relatively greater enlargement of the right ventricle. This is general in mitral disease though as we know not necessary. In pure mitral insufficiency we nearly always have a large left ventricle. We frequently see a case of more or less pure mitral stenosis at autopsy with a large right and small left ventricle. In a double mitral, the relative extent of the stenosis and insufficiency as well as the power of compensation possessed by the left auricle are among the factors which determine whether we are to get relative right or left ventricular preponderance. I shall soon show you an electrocardiogram from a patient with a double mitral and relative left ventricular preponderance.

This lantern slide shows you another type of P wave often seen in mitral disease. The P wave is large and, in addition, of a complex form. It is long, diphasic and somewhat notched in lead I, diphasic and more distinctly notched in lead II, and of normal height but notched in lead III. This is to be looked upon as evidence not only of an hypertrophy of the auricles but also of sufficient change in the auricular musculature to produce a difference in the topography of the spread of the excitation and contraction wave in the two auricles. We have here I believe evidence that parts of the auricle are undergoing progressive change. This is verified by the electrocardiogram of this patient taken two and a half months later. The P wave is not as high as here, is longer and the notching has disappeared. Just a short time ago this patient came back to the Hospital suffering from extreme heart failure. The electrocardiogram and pulse showed the auricles to be

fibrillating. I have another case under observation with this type of P wave, which changes its form from beat to beat sometimes very markedly. I suspect that we shall get fibrillation of the auricles in this case soon.

Some years ago Samoilof of the University of Kiev published electrocardiograms from a case of mitral stenosis taken within intervals of about one year. In the first electrocardiogram, there is a large split P wave. The patient who came into the hospital decompensated, left well compensated after a short rest and digitalis cure. In the electrocardiogram taken about a year later upon the second entrance in the hospital he found the typical electrocardiogram of auricular fibrillation. The patient was now in such a condition that the process of restoring compensation was very difficult and the prognosis very dubious.

The electrocardiogram is of distinct value in the study of our cases of mitral disease. A large P wave excludes auricular fibrillation. In such a case there is ground for hope that by proper care auricular fibrillation, the greatly feared further alteration in the auricular myocardium in mitral disease, may be prevented or warded off for a long period. A study of electrocardiograms taken at intervals acquaints us with changes in the auricular myocardium.

A large majority of mitrals develop auricular fibrillation and the perpetually irregular and unequal pulse sooner or later. At the same time it must be remembered that auricular fibrillation develops under other conditions and it is of great importance to recognize it, as the prognosis in any given case is poorer, immediately fibrillation sets in and the therapy with sufficient doses of digitalis is indicated.

Here are the records from a case of mitral stenosis accompanied by auricular fibrillation. In this condition, which was first recognized through experimental electrocardiographic studies on animals and clinical electrocardiographic observations upon patients there is an incoordinate rapid twitching of small portions of the auricular musculature. These frenzied contractions do not aid materially in filling the ventricles. Besides, an irregular and rapid series of impulses are transmitted from the quivering auricles to the ventricles.

Here are the electric representatives of some of the twitches present in various parts of the auricles. The twitches are very irregular in their origin, extent and propagation and not all of them cause movements of the string of the galvanometer because of this abnormal ori-

gin and direction of propagation. Often absolutely no evidence of them can be found. Here they are very small. The frequency of the twitches is about 500 per second. Luckily not every twitch succeeds in getting an excitation wave passed down into the ventricles so that the ventricular rate does not get above 200 in general. In our case it is about 100, because the patient is still under the influence of a completed digitalis cure. A short time after the above was taken the patient was again put upon digitalis as he was beginning to suffer from dyspnea and dropsy. After a few days of digitalis a partial heart block was produced, the ventricular rate dropped to about 70 and the dyspnea and dropsy soon vanished. It is in producing heart block in auricular fibrillation and flutter that Lewis and MacKenzie find the most notable clinical effect of digitalis. Digitalis, if continued, produces complete heart block, the ventricle beating in its own rhythm. If the digitalis is continued premature beats or extrasystoles originate in the ventricles. The rate of the ventricles again increases. We get coupled beats in advanced digitalis poisoning.

Here is the electrocardiogram from a case in which the patient's heart had been fibrillating and was seriously decompensated. Digitalis was given in large doses. The heart rate was cut down at first from about 140 to about 70 after seven days' treatment. Then coupled beats appeared. Here is an extrasystole originating in the right ventricle. It is followed immediately by one originating in the left ventricle. Then there is a pause and the coupled extrasystoles begin anew. The rate of the heart is here about 120, so that the original digitalis effect of slowing the heart rate has been lost after excessive dosage. On the other hand the pulse rate was only 60 as there was only one pulse for each double extrasystole.

The first contraction originating in the right ventricle and spreading rapidly to the left gave a distinct pulse because the ventricle was full at this moment and the stretched muscle fibers could get up sufficient tension to overcome the pressure in the aorta. The second contraction beginning in the left ventricle and spreading to the right by conduction came at a time when the ventricles were nearly empty and therefore the fibers not stretched. The resulting contraction was not powerful enough to overcome the pressure in the aorta and no pulse resulted. It is worthy of note that a first and second heart sound was heard, followed very closely by a third heart sound at each coupled beat. This

third heart sound was the first sound of the second ectopic beat. I show here a beautiful record kindly given to me by Prof. Einthoven of Leyden, Holland. This is a record of an electrocardiogram and the heart sounds recorded simultaneously. (Fig. 2.) Above we see first



Fig. II. Extrasystole coming immediately after normal beat. Normal beat has normal first and second heart sound. Extrasystole has short first sound and no second sound. Heart sound curve is lower curve.

a normal beat accompanied by a first and second heart sound in their proper places; then there follows immediately after the end of this systole a new systole from an ectopic focus in the left ventricle. This heart beat has only the first heart sound accompanying it. Then after a pause of one-fifth second a new normal heart beat follows and this is accompanied by both first and second heart sound.

We sometimes find paroxysmal tachycardia associated with mitral disease. In these cases there is a series of auricular extrasystoles originating in an ectopic auricular focus. These extrasystoles succeed one another at the rate of about 100 per second. (Fig. 3).

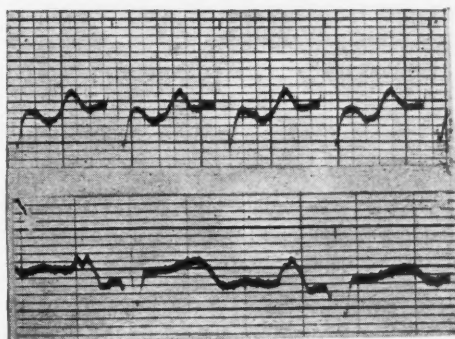


Fig. III. Paroxysmal Tachycardia. Upper curve taken during paroxysm, rate 180. Lower on normal day, rate 80. Note split P wave of mitral stenosis in lower curve, peculiar diphasic P wave in upper curve.

Here is the record from a case which I had at Montefiore Home and Hospital in New York. The lower record is lead II taken on a day when the patient was free from subjective symptoms and the pulse rate was 80. The upper record is lead II taken on the following day when the patient was suffering from palpitation, precordial pain and uneasiness. The rate is

200. The attack came on suddenly without warning and went as suddenly. In the lower record we see the large split P wave of mitral stenosis. In the upper record the P wave is diphasic and partly coincides with the T wave of the preceding heart cycle. This diphasic P wave is the result of the ectopic origination of the impulse. An analysis of the other two leads compels us to conclude that the ectopic focus is in the left auricle. Here the cause of the paroxysmal tachycardia is to be sought in the auricular extrasystoles of rapid rate originating at some abnormal point, here probably the left auricle.

The electrocardiograms found in aortic disease have nothing very characteristic about them. The curves usually show left ventricular predominance, electrocardiograms of which I shall show later. Sometimes aortic disease is associated with auricular fibrillation or with extrasystoles, both of which are clearly shown by the electrocardiograms.

The various forms of arrhythmia, extrasystoles, tachycardia, auricular fibrillation and auricular flutter are the peculiar field of electrocardiography, for abnormalities in the origin and propagation of the auricular and ventricular contraction waves are clearly shown in the electrocardiogram when other graphic methods are silent or the records impossible of analysis.

The condition designated auricular flutter by Jolly and Ritchie is characterized by short or long periods of auricular paroxysm. It comes and goes suddenly and may remain for years. The auricular rate is from 200 up to 300 per minute. The ventricle may follow at this rate but there is generally a 2:1 or 3:1 heart block which causes a slower ventricular rate. The auricular beats originate in an ectopic focus. This is shown by the form of the P wave and by the electrocardiograms taken during vagus pressure. Vagus pressure usually succeeds in blocking the auricles when the beat originates in the sinoauricular node. In flutter the ventricle alone is blocked on vagus pressure, the auricle remaining in its old rhythm. I am now going to show electrocardiograms of auricular flutter under vagus pressure. (Fig. 4).

The patient was on the TB service and the intern noticed a sudden increase in rate which startled him and which ceased all at once. The patient was sent down for an electrocardiogram. When she arrived the heart was beating at the rate of 115 per minute. The upper curve shows the electrocardiogram taken when the patient arrived at the heart station. The auricles are

beating at the rate of about 345 per minute, whereas the ventricle is beating at the rate of only about 115 per minute. As you will see, every auricular wave is not followed by a ventricular group. There is in this case a 3:1 heart block. Perhaps you will have some dif-

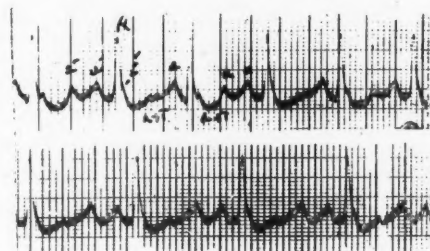


Fig. IV. Auricular Flutter. Upper curve before vagus pressure, rate 115 with 3:1 heart block. Lower curve after vagus pressure, rate 85 with 4:1 heart block. Record taken by Dr. David Felberbaum, New York City.

iculty in finding the first auricular wave of each group of three because it is fused with the downward limb of the R wave. The R wave in this case should dip farther below the zero position of the string shadow and the first part of the T wave in this electrocardiogram is not a crest but a trough. The P wave of the auricle is superimposed upon this, elevating the trough above its normal position. If you will note that the tops of the succeeding P waves are four scale divisions apart, you will be able to locate the third P wave without any trouble.

The lower curve shows a 4:1 heart block, the ventricle beating now at the rate of 85. This was produced by pressing upon the vagus nerve in the neck. Vagus pressure did not affect the rate of the auricles because the auricular beats were not starting in the sinoauricular node where the vagus controls the rate of the normal auricle. The vagus stimulation on the other hand did succeed in blocking the passage of the excitation wave down the bundle three times out of four. Vagus pressure was now taken off and the ventricle began to beat at the rate of about 155, that is, the rate doubled because now only one impulse from the auricles failed to pass down into the ventricles. The shape of the P wave also indicates that the auricular contractions are beginning in an ectopic focus.

It is the increase in ventricular rate which we fear in our cases with degenerate heart muscle. With a good heart muscle, no venous engorgement, enlarged liver or edema will develop, a thing which always happens in those cases where the heart muscle has no reserve. In the case with good cardiac muscle, palpitation is the most noticeable feature.

By means of digitalis we can produce a ven-

tricular heart block in auricular flutter so that the ventricle will beat at one-third to one-fourth the rate of the auricle. Large doses, continued long enough, will sometimes cause fibrillation. If the digitalis is now stopped in these fibrillating cases we sometimes see a return of the normal auricular beat. That is, the heart beat originates again in the sinoauricular node with a normal rate.

Auricular extrasystoles or premature beats are the source of arhythmies in many cases. The auricular premature beats arise in abnormal foci in the auricles and give an abnormal P wave. Auricular extrasystoles are relatively harmless unless the rate of formation becomes extremely rapid, in which case tachycardia results.

We see here a case of auricular extrasystoles in a young boy of 14 years with a history of scarlet fever, diphtheria and rickets. (Fig. 5).

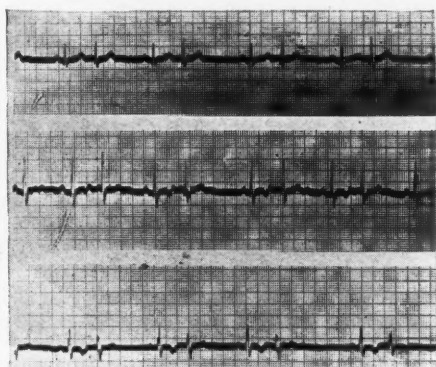


Fig. 5. Coupled beats with pulsus alternans due to auricular extrasystoles. Note peculiar diphasic P wave in second beat of each group of two. Record of Dr. H. B. Williams, New York City.

He was conscious of a peculiar throbbing of the heart when lying down. Otherwise he is normal and able to attend to his school duties and play. We shall examine lead II first. We notice coupled beats in which the first shows a normal P wave and the second which follows immediately is of abnormal form. Please note the large negative P wave, showing that the impulse originates at some abnormal point in one of the auricles. From the pulse which has an alternans character, we might conclude that there was reason for a dubious prognosis. But a case like this gives a very good prognosis so long as the extrasystoles are as infrequent as they are here. Emotional states tend to increase the number of auricular extrasystoles and we are bound to advise against all excitement for patients showing auricular extrasystoles.

Here is another case with auricular extrasystoles even more infrequent than in the pre-

vious case. (Note that there is not compensatory pause). This patient complained of occasional very short attacks of palpitation on excitement. Otherwise he is normal. Undoubtedly the number of the auricular extrasystoles is increased during these attacks of palpitation. We have here the transition to paroxysmal tachycardia. We would speak clinically of paroxysmal tachycardia in our patient, if the attacks of palpitation were increased so that they lasted an hour or so.

We have here the record of an interesting case of paroxysmal tachycardia. The patient, born of humble parents, received a good education, being first in her class and very ambitious to become a teacher. Circumstances forced her to leave high school in her last year and take up a clerical position in the office of a cheap clothing manufacturer. The young lady had developed a taste for certain of the refinements in conduct. She liked to be with nice people of intellectual tastes, etc. The boss did not satisfy her requirements in this direction, his one ambition being to make money. The young lady became nervous, could not sleep nights and complained of a fluttering sensation in the chest. She visited several physicians but nothing abnormal in the heart rhythm was found because she was examined in the intervals between attacks. Finally the attacks became more frequent and a specialist examined her during a true attack of paroxysmal tachycardia and advised an electrocardiogram. This showed a paroxysmal tachycardia due to the formation of rapid beats in a new auricular focus. We see here four normal beats at the rate of 60 per minute, the impulse being formed at the normal sinoauricular pacemaker; then a series of rapid beats originating in abnormal auricular foci, finally a tachycardia of about 220 beats per minute. A case like this does not give a bad prognosis if the cause of the emotional states can be removed. The patient should be brought into a pleasant environment. We very often find cases of paroxysmal tachycardia associated with emotional states such as disappointment in love, failure of cherished plans, death of friends, etc. They generally stop when the cause of the emotion is removed or the emotion dies out. The danger lies in the paroxysms becoming permanent. If then there is a marked dilatation with edema, engorged liver, etc. the prognosis is bad. On the other hand many patients live for twenty years or more with their attacks of tachycardia. They feel well as soon as the attacks stop.

Not all paroxysmal tachycardias are of auricular origin, though it is true most are. (Fig. 6).

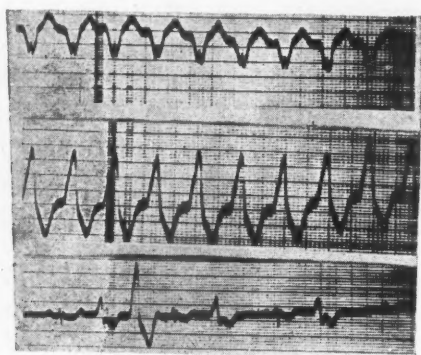


Fig. VI. Paroxysmal tachycardia of ventricular origin. Record of Dr. R. S. Oppenheimer, New York City.

We have here an electrocardiogram of a patient who suffered five days with this tachycardia of about 150 beats per minute. She was decompensated, had enlarged liver and congested lungs. She had been on digitalis outside the hospital but to no avail. Two injections of fifteen milligrams of morphine served to stop the attack, probably by stimulation of the vagus. Later on she had a second attack outside the hospital and this was stopped by morphine as before. This electrocardiogram taken during an attack shows in leads I and II a continuous series of extrasystoles of left ventricular origin. In lead III we have a series of coupled beats with one extrasystole of left ventricular focus. The second beats of the couple is also an extrasystole. In the intervals the patient has always shown isolated extrasystoles arising in the left ventricle. The patient is luetic and the daughter also. Antiluetic treatment has not changed her abnormal heart mechanism because the anatomic changes are already established. She also has an aneurysm of the ascending aorta.

We shall now look at some electrocardiograms of patients with extrasystoles of ventricular origin. This first lantern slide is from a patient with arteriosclerosis. Autopsy showed closure of some of the branches of the coronary artery. The patient suffered from angina pectoris. The extrasystoles originate in the right ventricle nearer the apex than the base. By means of the scheme of the equilateral triangle of Einthoven we can localize the focus of origination fairly accurately. I haven't the time to go into the method of localization here tonight. You will note that the extrasystoles in lead I and II are not followed by compensatory pauses, because the next following beat does not fall in the refractory period of the heart muscle. On the other hand the extrasys-

tole in lead III has a compensatory pause because the next following normal beat originating in the auricle would come during the time that this ventricle is still contracting and refractory. This patient showed extrasystoles every third beat when ocular pressure was exerted, showing that her extrasystoles are due to stimuli coming down the vegetative nervous system and are not due to changes in the heart muscle itself. Einthoven has shown this same thing in experimental morphine poisoning. The morphine poisoned dogs show numerous extrasystoles of right and left ventricular origin which cease on section of the vagus.

The next case is different. Only lead III is shown but it is sufficient for a diagnosis of left ventricular extrasystoles. The patient suffers from arteriosclerosis and has symptoms of angina pectoris. At autopsy, closure of some of the branches of the coronary artery was found.

Heart block gives characteristic electrocardiograms. Here is a 2:1 heart block in a patient with a positive Wassermann who improved upon mixed treatment. He suffered from cardiac asthma and with the improvement of the heart block the cardiac asthma also disappeared. The peculiar notching of the QRS group also indicates hindrance to the passage of the impulse down some branch of the conducting system. That it is only a partial heart block is shown by the fact that the ventricular complex follows the preceding auricular P wave after a definite pause which does not vary from beat to beat.

Here is a case of complete heart block which has persisted for eleven years. There is no history of syphilis and the Wassermann is negative. The patient had a slow pulse and fainting spells at 17. He now has fifteen a day. Nothing helps, neither digitalis nor atropine; he has thrombosis of the right femoral vein now. The ventricle beats at a rate of between 20 and 30. The intervals between the preceding P wave and the next QRS group are variable showing that the impulse to ventricular contraction is not conducted by the conducting system from the auricle. (Fig. 7).

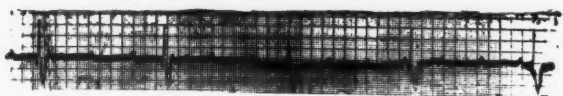


Fig. VII. Complete heart block.

In the next electrocardiogram we see complete heart block. This is shown in lead I by the fact that the interval between the preceding P wave and the beginning of the ventricular complex is of variable length. The patient has

had his heart block for many years and feels well in general. He gets attacks of Stokes-Adams syndrome. He has a large left ventricle, a systolic murmur. He had scarlet fever. The Wassermann is negative. The peculiar QRS group is worthy of notice. Normally lead I would be upright and lead III downward, pointing to enlarged left ventricle if the impulse came down along the normal path. Here an analysis of the QRS group by means of the method of the equilateral triangle shows that the impulse to contraction undoubtedly started in the left ventricular portion of the conducting system. Thus the left ventricle gets its negativity a little sooner than the right. This is further evidence that the block is complete for in enlarged left ventricle the right heart is negative first if the impulse comes down along the normal path.

Lately Dr. B. S. Oppenheimer of New York has called attention to a peculiar electrocardiogram associated with sclerosis of the subendocardial layers of heart muscle; that is, those fibers which contain much glycogen and which belong to the specific conducting system; especially the end arborizations of the same. (Fig. 8).

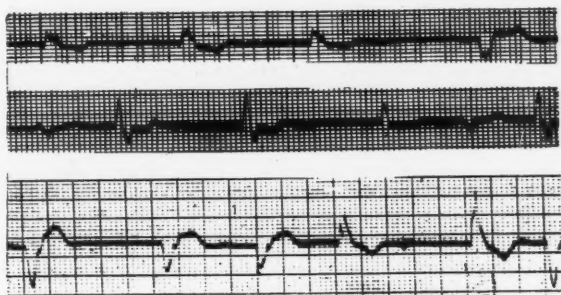


Fig. VIII. Split, prolonged and variable QRS group associated with degeneration of subendocardial layers of conducting system.

Here is the electrocardiogram of one of these cases. The auricles were fibrillating and no P wave is to be seen and the beat is irregular. Note the low, prolonged and split QRS group for this is the chief characteristic of this type of electrocardiogram. In the ordinary electrocardiogram only about 0.08 seconds elapse from the beginning of the Q to the end of the S. In this electrocardiogram we see as much as 0.16 seconds elapse before the completion of the electric variations which cause the QRS group. Note also that there are as many as six distinct pikes or notches to the QRS group here. This all shows that there has been some interference with the spread of the excitation wave over the entire inner surface of both ventricles. You will remember that I told you that the QRS represents the spread of the ex-

citation process from the time it leaves the right and left main branches of the His-Tawara conducting system to be conducted further by the subendocardial layer of endarborizations. Autopsy has shown that these conclusions are justified. In these cases we find sclerotic patches of degeneration occupying the place of the subendocardial muscle fibers.

We not only have interference with the conduction of the impulse to contraction in the endarborizations of the specific conducting system but also in the main branch and in the right and left branch. The former leads to heart block, a few electrocardiograms of which we have seen. The latter leads to a peculiar type of electrocardiogram an example of which I show here. Note the great height of the QRS group, its increased duration and the fact that the T wave in each lead has the opposite direction from the highest point of the QRS group. These are the characteristics of the electrocardiograms of bundle branch block and serve to distinguish it from left and right ventricular predominance which we shall discuss next. In bundle branch block the impulse comes down into one ventricle first, spreads over its inner surface very rapidly through the endarborizations and then more slowly through the rest of the muscle from within outward and across through to the other ventricle. When the negativity starts to die out, naturally it now does so earlier in that ventricle where the impulse first arrived and the result is this diaphasic type of electrocardiogram. Bundle branch lesions are usually of luetic origin. Sometimes gumma press on the branch. At other times there is apparently no lesion demonstrable.

Predominance of right or left sided dilatation gives very characteristic curves. Usually it is said that right or left ventricular hypertrophy can be shown by the electrocardiogram. For various reasons which will come out in my discussion I prefer to speak of a predominance of the dilatation of the right or left side of the heart. Dilatation always precedes hypertrophy. When extra resistance is given a ventricle to overcome, it always begins by dilating, as we know from Starlings beautiful work on the factors governing the dynamics of the heart. This dilatation may soon be followed by hypertrophy. The increase in size of a cavity increases the length of the conducting system and its outlying branches in that ventricle and consequently the other ventricle receives its impulse to contraction earlier and becomes negative sooner. Therefore the direction of the

potential difference in the heart is not the same when one side is negative first and the other follows later as when both are negative at the same time. It is the direction of the potential difference in the heart which determines the direction in which the R is turned in leads I and III. If the the left ventricle is larger than the right then the impulse gets to the right side first and we have the R pike upwards in lead I and downwards in lead III as shown in this electrocardiogram which was taken from a patient suffering from chronic interstitial nephritis with blood pressure 270 mm. Hg. I shall now show the electrocardiogram of a patient with mitral stenosis whose right heart was known to be markedly dilated from X-ray findings and which on autopsy were confirmed. The right heart was much larger than the left and when I measured the length of the conduction path from a point where the left and right bundle separated to the papillary muscles in right and left chamber and from here up to near the base of the corresponding ventricles I found the path in the right heart approximately 6 cms. longer. This is not the place to go into the subject of direction of the potential difference in the heart and the time relations of its turning. I shall say here that my measurements and analyses showed that the impulse got into the base of the right heart about 0.02 seconds sooner than into the left in the above case which would correspond to a conduction time about 2.5 meters per second. I have already published some of these analyses in *Deutsches Archiv für klinische Medizin* in 1915 and shall soon have a paper ready on the subject for a new publication. What I want to emphasize is that we can only determine a relative predominance of the right or left side of the heart with the electrocardiogram. For this purpose it is better than the X-ray in many cases. On the other hand we cannot say whether a heart is large or small if the relative enlargement on both sides is nearly equal.

It has been impossible for me to cover the whole field of clinical application of electrocardiography in the time at my disposal. I have only tried to show you some of the evidence which the electrocardiogram can give us. I believe though that I have shown the kind of evidence which the electrocardiogram can give us, so that you will all know what kind of evidence is to be expected from studies of the electrocardiogram.

Before closing I want to bring out one of the important uses of the electrocardiogram, a use

of which we will make more in the future, I am sure. In acute rheumatic fever the electrocardiogram often gives evidence of myocardial damage before polyarthritic and valvular symptoms develop. At a time when the only other lesion is in the tonsils we often find heart block or get extrasystoles. It takes a comparatively long time for valve lesions to develop. If we wait until they are fully developed valuable time will be lost for it often takes repeated infections to develop them. The good myocardium is of extreme importance in compensating the extra work put upon the heart by valve lesions. By prophylactic rest cures, graded exercises and baths we can often improve the myocardium and make it more equal to its future task. Or we may be stimulated to have tonsils removed or other foci of infection cleared up when we find that the electrocardiogram shows signs of damage to the myocardium. An electrocardiographic tracing will often bring home to us the serious import of otherwise seemingly negligible symptoms.

It can be said without exaggeration, that the electrocardiogram more than any other instrument has stimulated to an intense consideration of the very important subject of the mechanism of the normal and the diseased heart. The electrocardiogram is primarily a record of function in contradiction to the older method of auscultation and percussion which gives us primarily anatomic information. But I do not believe with Lewis that "graphic work has dealt a severe blow to the prestige of anatomic pathology." It is a worthy complement.

Allow me to show a slide of the laboratory of physiology in Leyden, Holland with its director Prof. William Einthoven the father of electrocardiography. To his systematic and untiring efforts the science of electrocardiography is due. Einthoven is the designer of the instrument by which electrocardiography is made possible. This instrument, the string galvanometer, may also be used for recording the heart sounds graphically, as well as the sounds of percussion. It has been used in wireless telegraphy and as a very sensitive recording seismograph. It could undoubtedly be used in the detection of submarines at a distance from the instrument. Prof. Einthoven is a pupil of the great Dutch ophthalmologist and physiologist, Donders. We see him here in his laboratory surrounded by his assistants, two of whom are in uniform as this was taken during the present war, and the Dutch are mobilized as well as all the other neutral peoples of Europe.

LEUKEMIA CUTIS WITH DEMONSTRATION OF CASE.

JOSEPH A. ELLIOTT, M.D.

(From the Clinic of Dermatology and Syphilology, University Hospital, Ann Arbor, Michigan.)

The patient whom I wish to show tonight is an American Jewess, 48 years old, housewife. She comes to the Hospital because of an eruption over the body. Her family history is entirely negative, and her past history is negative. She has six healthy children.

Her present trouble began last winter when she states that worrying would bring on a backache in the lumbar region. She applied a liniment, and the backache left her in the spring. She has continued her housework up until six weeks ago, when she was forced to give it up on account of progressive general weakness and indisposition. Three months ago she noticed intense itching all over her body, followed by the appearance of a minute papular eruption. The lesions were pruritic, but not red. The papules have gradually increased peripherally, until now they are large plaques, itching only periodically. The lesions on the face appeared six weeks ago, and have been unaccompanied with subjective symptoms. The patient has been constipated for years, increased in the last six months. Four months ago she noticed a loss of appetite which has never returned. For the past three months she has had a cough which is very productive, yielding purulent sputum. She vomits about once a day, but believes this is induced by the coughing. There is no shortness of breath, but she complains of occasional palpitation of the heart. She has no fainting spells, and has noticed no numbness, but her feet become heavy after slight exercise. There are mild headaches. In the past three months she has lost twenty-two pounds in weight. She has had no night sweats. There have been no general pains, but of late she has noticed various prickling sensations over the cutaneous surfaces. Her ankles have swollen once during the past six weeks. The patient gets up once a night.

Examination shows a fairly well nourished woman of average appearance. The scalp is clean. The pupils react fairly well to light, and accommodation. The skin of the face, especially on the left side, shows large blotches of a peculiar discoloration, having the appearance of a diffuse hemangioma. The skin of the trunk and extremities in general is of a sallow pale hue. Distributed over the body, and especially over the arms and trunks are numer-

ous infiltrated nodules. For the most part, these are rounded in outline, flat, discrete, raised and vary in size from that of a nickel to that of a silver dollar. In places the lesions seem to have involuted, leaving a brown pigmentation. The active lesions are not inflammatory, but of a slightly darker hue than the surrounding skin. In short, the lesions may be said to resemble very closely the pigmented wheals which one sees in urticaria pigmentosa. The mucous membranes are pale. There is a slight axillary adenopathy. The spleen is hard, firm, and palpable two finger breadths below the costal margin. The Wassermann reaction on the blood is negative.

Leukemia cutis may present itself in numerous ways. There is nothing particularly characteristic about the lesions. One of the conditions which has been described is spoken of as leukemid, and is not a true leukemia cutis, but is nothing more or less than a hemorrhage into the skin. This was first described by Friedrich, Ebstein and Fraenkel, and is the condition which appears on this woman's face. If a patient presents simply a diffuse hemorrhage into the skin we would naturally suspect that this was a septic process, and the only way to make a diagnosis would be from the blood findings. There is also a pruriginous eruption associated with leukemia which closely resembles prurigo Hebra. This is called prurigo lymphadenosis, and has been described by E. Wagner, Buschke and Briesendorf. It is, however, not characteristic of leukemia, but may occur in several conditions involving the lymph glands, such as lymphosarcoma, Hodgkin's disease, tuberculosis, and malaria. Further we may have a generalized erythema of the skin, and this also may be found in the other conditions which I have mentioned.

Lastly, we have two forms of leukemia cutis, the universal form, which is rare, and the circumscribed form, such as we have over the body in this case. This is the more common form, and is seen in acute leukemia, and particularly lymphatic leukemia. It is not pathognomonic because it is exceedingly rare, and resembles some other conditions, such as the early stages of mycosis fungoides. Here again the diagnosis is made from the blood findings. The location of leukemia cutis is fairly characteristic in most cases. The sites of predilection are the face, back of the hands, ears, and chin. Exceptionally we see the eruption over the entire body.

The pathogenesis of the condition has been a question of much dispute among dermatolo-

gists and pathologists. Some pathologists believe that it is a metastasis into the skin, a view founded on the fact that the cells are seen around the blood vessels, where there is a proliferation. Others believe that it is a lymphoblastic proliferation of the tissue. Those who hold this view point to the fact that there are many mitotic figures.

The etiology of leukemia cutis is not known, but it is believed to be associated with some infection. Quite a number of observers have been able to isolate organisms and attempts have been made to demonstrate the tubercle bacillus, but without effect. Orth and Pappenheim have shown rods which were not acid fast, but which produced adenitis in guinea pigs. Arndt has found in some cases acid fast organisms, and he believes that many cases are due to the tubercle bacillus. It may be necessary to take out a pathologic section in order to arrive at the diagnosis. Of course in this case, the blood findings were fairly characteristic, and the biopsy shows a typical picture of leukemia cutis.

DISCUSSION.

DR. L. HARRY NEWBURGH: I want to add to Dr. Elliott's paper the record of another case of leukemia of the skin. This case entered the Medical Clinic for the treatment of leukemia. The cutaneous manifestations were incidental. It was an example of so-called acute leukemia. The whole history ran for four months from the first symptom until death. The subject was a boy of 18, who first noticed increasing weakness and fatigue. Shortly after the initial symptoms, he noticed enlargement of both sides of his neck. These continued to grow, accompanied by more marked weakness and general debility. Next he began to suffer from dyspnea. The fourth event was swelling of the abdomen, chiefly on the left side. At this time he first went to a physician, who put him to bed and treated him for typhoid fever. There was no improvement and he came here two months after the beginning of his disease. Just before entering the Hospital he noticed that his face was discolored. His mother also spoke of the fact but there was very little made of it. He presented all the typical signs and symptoms of acute leukemia, running a continuous fever. There was marked glandular enlargement in the neck, axillae and groins; also a large spleen. He had a very large number of mononuclear cells in his blood and a moderately high white count. There was no question about the diagnosis. At entrance we noted that both cheeks, and an area extending to the chin and back as far as the ears were a dusky copper color. In addition to that the skin was thickened, differing in that respect from this woman. We were unable to feel any nodules. In addition to that he had a very marked, typical

purpuric eruption over the whole body. The skin of his face did not show the same color as the purpuric lesions. It was discolored and had a distinct thickening. The question came up as to whether this was a marked degree of hemorrhage into the skin, or a part of his general tendency to bleed. Dr. Wile at that time thought there was no question as to the nature of the skin involvement of the face. One of the interesting features of the condition was that it increased and decreased irregularly as time went on. When he first came in the condition became more marked. The copper hue and the thickening became more intense and then the condition decreased and later on increased again. He had nothing else in his skin which might be called leukemic. He had a great many hemorrhages from his mucous membranes and great crops of purpuric spots, but in no instance did he have anything which would at all suggest the conditions in his skin.

He also is an example of acute lymphatic leukemia. It is exceedingly interesting as a side issue that he was treated as typhoid fever because cases of acute leukemia are primarily treated for something else, such as myocarditis, sepsis, etc.

DR. QUINTER O. GILBERT: The differential blood count in the case presented tonight is as follows:

Reds 2,295,000, Whites 71,200, Hemoglobin 4.5 per cent. $CI\ 45/45 = 1$.

The count on 300 cells was as follows:

Polys 40 per cent., large lymphocytes 3 per cent., small lymphocytes 2 per cent., eosinophil polys 2 per cent., transitionals 3 per cent., large mononuclears 5 per cent., myelocytes 13 per cent., eosinophil myelocytes 2 per cent., myeloblasts 20 per cent., normoblasts 3 per cent., megaloblasts 7 per cent., total 100 per cent., degenerates 12 per cent.

This is a very peculiar differential blood count for a leukemia. The polymorphonuclear cells are decreased and the elements which are increased are the normoblasts, megaloblasts, myeloblasts and young myelocytes.

On the face of it, this is not then an ordinary leukemia in the sense that we speak of a lymphatic or myelogenous leukemia. I have seen only two bloods which approach this picture. One of them was a patient whom we had here several years ago and whom I have held in reserve to write up because the blood was so peculiar and hard to differentiate. That was a case of very fulminating acute miliary tuberculosis. Preagonally the count went up to a hundred thousand when the blood was loaded with gigantoblasts and cells from the bone marrow.

The first peculiar thing in the case shown tonight is the color index which is one. This is not like a leukemia because in leukemia there is a secondary anemia. It is more like hemolytic anemia and not true leukemia. Furthermore, in leukemia you never get so marked a disturbance in the myeloblasts, normoblasts and megaloblasts which make up 30 per cent. of the group. The other increases

are all from the bone marrow. So this patient has some sort of a condition where there is a stimulation of the bone marrow and we know of such conditions in patients who have an acute infection or some toxic condition which stimulates the bone marrow. It is not a true leukemia in the nature of tumors. So it is a condition where there is a tremendous stimulation of the bone marrow producing a destruction in red cells giving almost the picture of a hemolytic anemia rather than a leukemia. It is very hard in such cases to differentiate between the undifferentiated myeloblasts, lymphoblasts and lymphocytes. I frankly admit that more differential stains should be used on this blood to differentiate the cells.

DR. MARK MARSHALL: I saw this case with Dr. Elliott previously. I was of the opinion that I had a similar case two or three years ago, but after talking with Dr. Elliott, I learned that leukemia cutis was such a rare condition that I thought perhaps I was mistaken. In looking over the notes of the case and comparing the description of the lesions with the lesions which this patient presents, I feel quite sure I was mistaken. I think very likely my case was one of erythema nodosum.

I was interested in Dr. Gilbert's discussion of the differential blood count. I reported a case of miliary tuberculosis three years ago which had a differential count very much the same as this patient but the total count was not nearly so high. I think 30,000 was the highest count reached. The premyelocytic forms reached 35 per cent. That was a case of very acute miliary tuberculosis. It was diagnosed leukemia previous to the autopsy. The question as to whether we are dealing here with a leukemia seems to me should hinge upon the pathologic findings at autopsy. We don't know a great deal about leukemia at best. In leukemia one gets metastatic foci of abnormal cells such as these, while in an acute infectious process these metastatic collections do not occur, and they did not occur in the case which I reported. I saw the sections of the skin from this case which showed beautifully almost tumor-like formations within the skin itself.

DR. ELLIOTT: (Closing the discussion) In regard to the case which Dr. Newburgh reported, it seems to me that the case could very well be a leukemia cutis of the face and leukemia of the body, the latter consisting of diffuse hemorrhage into the skin. The differential count is particularly interesting. However, in practically all of the cases described there has been a marked increase of the lymphocytes and it has been distinctly lymphatic leukemia. Dr. Marshall's case may well have been leukemia cutis inasmuch as the lesions themselves are not pathognomonic. The lesions differ so that it is impossible to make a diagnosis from the character of the lesions. Arndt in his discussion of leukemia cutis classifies it under three different groups, aleukemic, with no increase of cells; subleukemic, with slight increase of cells; and leukemic, with decided increase of cells. All the lesions show the typical infiltrates into the skin.

A REPORT OF A CASE OF HYDROPHOBIA.

HAROLD DEB. BARSS, M.D.

(From the Surgical Clinic, University Hospital, Ann Arbor, Michigan.)

The case which I shall report tonight is the second of two cases of rabies which have been cared for in the Surgical Clinic of this Hospital in the last fifteen months. I chose this case because of the extreme rarity of the disease in these days, and because the manifestations were so uniformly typical of the malady as recorded by all writers on the topic. It is interesting that of six men whose works I have lately read, three frankly stated that they had not seen a case themselves and were merely transmitting data derived from others. The other three neglected to state whether or not they had seen a case. It has been our good fortune (good from a scientific view only) to have witnessed two undoubted cases of hydrophobia. The first case was treated here on August 23, 1916, and I believe has been or will be carefully and comprehensively reported in the literature by Dr. Herbert W. Emerson who is in charge of the Pasteur Institute, and I shall not refer to it. The other is the subject of this paper.

It is not my intention to tire you with an exhaustive treatise on the subject. For this meeting I merely want to review briefly the outstanding features of the disease as recorded by most authors, and then compare these with the actual signs and symptoms as manifested in this case.

Rabies is an acute contagious disease produced by inoculation of a wound with a specific virus contained in the saliva of a rabid animal, usually transmitted by a bite. The exact nature of the infecting agent is not certainly known, but that it is some form of microorganism there can be no doubt. After inoculation, the virus is conveyed to the central nervous system by means of the peripheral nerves from the wounded part. Whether the toxins alone or the infective agent itself is thus transmitted is still unknown. After reaching the cord, the virus travels to the medulla, cerebellum and cerebrum; thence also along the spinal and cranial nerves and in this way reaches the salivary glands, especially the sublingual and submaxillary, and so renders the saliva highly infectious.

The period of incubation varies widely. The shortest period has been twelve days; the longest is not definitely known—several months

to a year. The average is forty days. Incubation is shortest following bites of the face and wolf bites. The wounds are frequently insignificant, heal promptly and are forgotten.

Hydrophobia does not follow in every case bitten by a rabid animal. Roux, Babes and others estimate that only about 14 per cent. of persons bitten by a rabid animal develop the disease. The mortality has been considerably reduced since the development of the Pasteur treatment. The report of the Parisian Pasteur Institute shows that since its foundation there has been a mortality of 0.5 per cent. This treatment shows one twenty-fifth of the mortality which attends all other preventive methods.

In hydrophobia death is almost inevitable. Practically all cases in which it is alleged that recovery ensued were not true rabies but hysteria. An exception must be made in Murri's case. So far as I have learned Murri of Bologna cured the only case of true rabies which has recovered. This he did by injecting emulsions of cords of rabbits dead six, five, four and three days respectively.

In brief, the symptoms as recorded by most writers correspond almost exactly and are divided into three stages:

1. The prodromal period, during which the healed wound may itch or tingle, with sometimes neuralgic pains. Frequently there are no abnormal symptoms in the old scar. The patient complains of malaise, nausea, headache. Mental depression is the rule. There are sometimes chilly sensations, stiffness in the neck and slight respiratory difficulty due to incipient spasm of the diaphragm.

2. Period of excitement, characterized by increased anxiety; dysphagia because of pharyngeal spasms; intense hyperaesthesia of the skin and all the special senses. Noises and drafts of air provoke sudden dyspnea and convulsions. The pupils are fixed and dilated. There are marked anginal attacks in these periods of apnea. Delirium is absent at first but may develop later. The seizures become more frequent. Salivation is marked. The patient is unable to swallow and so the thick tenaceous saliva drops away or the patient spits violently. Gradually the suffocative paroxysms which had been induced by external stimuli seem to come on spontaneously and the patient throws himself about and must be restrained.

3. The paralytic stage in which the patient sinks into a profound exhaustion. The pulse becomes rapid and weak, death resulting usually in coma with paralysis.

The entire course of the disease may be run in sixteen hours or may last four to five days, seldom longer.

The treatment must be prophylactic. Wide excision, or amputation of small parts, followed by the actual cautery, caustics, or germicides, preferably bichloride of mercury. If there has been a delay of some hours or days, the cautery is useless and may delude the patient into a sense of security. The treatment par excellence and the most rational is the Pasteur treatment, on which I will not touch in the present paper.

If the disease has developed, the only treatment now known is to relieve the seizures with morphine, hyoscine, chloral, or chloroform and give rectal water to alleviate the intense thirst. Curara has been tried because of its action in paralyzing the nerves supplying striped muscle, thereby controlling the convulsions. One cure through its use has been reported but it is doubtful if it was a true case of hydrophobia. It was tried in our previous case with little or no effect, save to control the convulsions. Antirabic serum is also given but save for the one known case has been of no avail.

Compare this textbook picture of the disease, with our case.

D. W. a school boy of 13, entered the Surgical Clinic of the University Hospital October 1, 1917, at noon, with the following history: About the middle of last July he was bitten while trying to separate two dogs which were fighting. One dog was his pet, the other was strange. It was the strange dog which did the biting and so far as could be determined it was accidentally done. No one knows what became of the dog. The forefinger of the right hand was lacerated so that one stitch was taken and some powder dusted on. The wound healed promptly and nothing further was thought of it till September 29, when the boy felt an occasional momentary twitching pain in the bitten finger, slight nausea and a rather severe headache. The next day, September 30, the patient exhibited occasional attacks of dyspnea, some difficulty in swallowing, and a hypersensitiveness to cold drafts. On October 1 the difficulty in swallowing became more pronounced and the child was brought to the Hospital.

On entrance the patient appeared pale, eyes prominent and glaring. The facial muscles were very active producing frequent scowls, pouting of the lips, etc. The gait was somewhat stiff and spastic. When seated the boy sat huddled with his chin on the chest and the collar of his Mackinaw was pulled high around his

head because, he said, the draft hurt him. The patient walked to his room and undressed himself. He said he felt well but couldn't swallow easily. Attempts to swallow seemed to interfere with breathing. He didn't see any need for going to bed but was willing. There were frequent exaggerated attempts at laughing and a sort of explosive method of talking, hurrying as though trying to get out an idea before one of the respiratory spasms should interrupt. He asked that the window be closed because the "air currents" worried him. His temperature was 102.6 deg., pulse 164, respiration 48. Antirabic serum was administered.

The patient remained about the same till 2 p. m. The only complaint was an increasing difficulty in swallowing. He could take only a teaspoonful of liquid at a time. The boy would take the spoon very carefully and slowly, would fill it and slowly approach his mouth and then suddenly throw the contents in, in an attempt to get it in and swallowed before the spasm. Each such attempt would excite an attack.

At 3 p. m. occurred the first general convulsion, which lasted about thirty seconds. The boy suddenly sat upright in bed and then threw himself back violently, clutched at his heart and begged the nurse to rub it hard. He called loudly for his mother, and from that moment he seemed to have an uncanny presentiment of impending death. From three o'clock on he kept calling for his mother, begging all the attendants to get her; shouting out at the top of his voice, declaring that if she didn't come soon, she wouldn't see her boy alive. "Tomorrow will be too late. If she doesn't come soon I'll be a stiff corpse when she does come." The convulsive seizures, tonic rather than clonic, succeeded at more frequent intervals. The neurologic examination at 3 p. m. by Dr. Camp showed the following. "The patient replies promptly to questions, seems excited. Occasional grimaces about the mouth accompany talking. No memory disturbance. Pupils dilated and fixed to light and accommodation. No palsies, heart rapid. Peripheral hyperaesthesia."

Restraining sheets had to be applied at 3:20 p. m. The patient then became very restless, throwing himself around the bed. The convulsive attacks became more frequent and of longer duration. During the seizures in which the most prominent symptom was sudden spasm of the diaphragm with apnea, the patient cried out with pain over the heart and in terror begged the nurse to rub it, and called wildly for

his parents. His mentality was perfectly clear between attacks. He pleaded to have the restraining bands loosened. "I am such a little boy. Won't you get my mother? Don't you want to please me? Well, go to it then, get her, because if you don't, she'll never see her boy alive."

At 4:30 p. m. antirabic serum was again administered, followed by one-quarter grain of morphine sulphate hypodermatically. The spasms occurred still more frequently, the longest interval being seven minutes, the shortest, one minute. At the first hint of an approaching attack the boy would spring up to a sitting posture then throw himself back violently, the face contorted with frightful grimaces. The boy could no longer swallow and would spit forcibly. Any attempt to give liquids by mouth, or any sudden noise, would throw the lad into a spasm.

At 6:30 p. m. the second dose of morphine sulphate, grain one-quarter was given but was not effective. There was incontinence of urine. The bowels did not move. At 7:40 about forty grains of chloral was given per rectum; the exact amount could not be estimated as some of it was immediately expelled. The Murphy drip was started, but the water was not retained and that method was discontinued. The patient was still very excited and noisy till about nine o'clock when in an exhausted state the boy began to lie more quietly. A radial pulse could not be obtained, respiration was very irregular and shallow. There were only occasional convulsions during which the patient would strike out and claw at objects or persons near him. Now rational only at times. A reddish brown thick tenacious mucus dripped from his mouth and there were no longer attempts to spit.

At ten o'clock the patient became unconscious, the limbs rigid, the breathing stertorous, at times almost vocalized in a peculiar crowing sound. The rectal temperature at 11 p. m. was 107.8 deg. This comatose state continued till respirations ceased at 12:30.

It seems strange and most unfortunate that within the last fifteen months two patients both living within fifty miles of Ann Arbor should develop this most rare and terribly fatal disease. It seems hardly possible that the need of prophylactic measures in any suspected dog bite is still unknown by many persons. Had these cases occurred in the Upper Peninsula in some out of the way place where a doctor is not readily accessible we might excuse it. But when

it occurs so close to this institution in a community where well informed men are practicing, something must be lacking.

The public is becoming educated to the dangers of tuberculosis and is becoming versed in the knowledge of the proper methods of prevention and cure of that disease. Tuberculosis clinics have been held frequently, and censuses. Literature is spread broadcast and the press has aided remarkably in helping on this work.

It would seem that some more radical methods must be taken to get to the public mind the knowledge of the dangers of dog bites, and the measures necessary to avoid an occurrence of the disease. I believe that our doctors must be more alert to the possibilities of this infection, and the urgent measures that should be adopted to avoid it. The physician must keep ever fresh in mind the picture of the disease that he may more quickly diagnose the condition. I believe that the people should learn through wider notices in the press and through literature, the location in this city of a Pasteur Institute, what it is and how it may be used.

And more than this, there should be more stringent laws governing the keeping and care of dogs. In this regard, England has more stringent laws than any other country and rabies is an unknown disease there. Rare though it is here, it is all too frequent a visitor. Perhaps the dissemination of this knowledge is being conducted as widely as possible; but one who has seen the awfulness of the disease cannot help but hope that the time will soon come when there will be no more rabies.

For this state, I would make one other suggestion. The cost of such a course of treatment is almost prohibitive. It must be true that many persons have to take their chances, and run the risk of infection, because they cannot afford to take the treatment. There is in this city a Pasteur Institute where treatments are given for all suspected cases; but even at this Institute, the state requires that for all persons so treated, there shall be a deposit of twenty-five dollars (\$25.00). One can readily see that for many persons even this price is absolutely prohibitive. The persons affected are not responsible for getting bitten, and they are not responsible for the laws which allow dogs to run free. It seems unjust that they should be required either to pay the twenty-five dollar tax, or else run the risk of infection. In my opinion, this treatment should be provided to citizens of the state, free from all tax, and

I earnestly place this suggestion for your consideration.

DISCUSSION.

DR. HERBERT W. EMERSON: There are only a few things which I wish to add, and they are to emphasize some of the lessons from these two cases. We have learned from experience to pay no attention to the history in cases of dog bites, as to whether the dog had rabies or not. Patients will come to you for treatment of bites and perhaps tell you that the dog was all right. We must not accept such statements without finding out the facts in the case. In this last case the patient reported to a physician and said that the dog was all right.

Secondly, in dog bites, one should resort to thorough cauterization with fuming nitric acid. Next to that, is the treatment of the wound with formaldehyde. The treatment of the patient after he develops symptoms of hydrophobia is chiefly palliative. There are three or four different treatments that have been recommended. I might call attention to the quinine treatment developed by Dr. Moon of Kansas City (*Journal of Infectious Diseases* XIII, 165) and used by Dr. Harris of St. Louis (*Journal A. M. A.* 1913, p. 1511) who reports a cure. This was probably a case of mistaken diagnosis. This treatment has been checked up in a number of laboratories and in our laboratory here by Dr. Cumming. It causes no delay in the development of the symptoms or in the death following in inoculated animals. It was checked up by Dr. F. S. Fielder of New York. One of his three cases yielded to the treatment but this was afterwards diagnosed as a case of hysteria.

Quinine and urea hydrochloride is given intravenously and intraspinally five to ten grains every few hours. Given intraspinally this is a dangerous method. In one case it was followed by an alarming collapse which lasted two hours. It had no apparent effect on the symptoms of the disease which proceeded three convulsions and paralysis to death.

The second treatment is the use of phenol in one or two per cent. solution given subcutaneously. This was first used about 1913 by Haberlin and one case of cure was reported which probably was a case of mistaken diagnosis because all cases since have shown no beneficial result of the treatment.

I have been more interested in the study of the treatment of this disease since I have seen these two cases, in the attempt to guide me in the treatment of the next patient should I be unfortunate enough to have one.

Hydrophobia is a protozoan infection, and inasmuch as a number of protozoan infections lend themselves to treatment, one might hope to find some substance which might offer some assurance of cure, but such has not been the experience of others.

DR. IRA D. LOREE: I would like to ask Dr. Emerson what disposition should be made of the animal and patient after the wound has been cauterized soon after its infliction, with fuming nitric acid.

DR. HERBERT W. EMERSON: Have the animal locked up securely, for a dog suffering with rabies will get away where an ordinary dog will not. If the dog is all right at the end of ten days, don't worry. If the dog dies, the head should be sent to

the Pasteur Institute and the patient should be sent to the Pasteur Institute. In any case in which you cannot get access to the dog, the dangers of the condition should be emphasized to the patient and if he wants to gamble with his life, he should be discouraged from doing so. In most cases, the patient or the parents of the patient have not realized that if the condition goes on until symptoms develop there is nothing that can be done.

DR. JAMES G. VANZWALUWENBURG: Personally, it seems to me rather futile to ask for more stringent laws because after all, a stringent law is bound to be a dead letter unless it is backed up by public opinion and public opinion is the feature which I think should be emphasized in this matter.

DR. BARSS: (Closing the discussion) I haven't much to add except in regard to the legal aspect. Rabies is practically unknown in England and Australia, due to legislation. Literature says that rabies is unfortunately all too common in America and we are lax in our legislation regarding dogs. I beg for a wider distribution of the knowledge regarding rabies. Often we doctors don't know what to do if we get a case of dog bite. We don't know how much security to take in immediate cauterization. We are coming to know about abortive treatment of tuberculosis and venereal diseases. We should know more about rabies. If you should talk with most of the doctors or lay people, they are absolutely helpless in knowing what to do in case of dog bite, or if they know that the dog was rabid, they don't know about Pasteur Institutes. If we have more widespread literature on the subject the laws are sure to come.

A CASE OF TYPHOID FEVER RECEIVING INTRAVENOUS INJECTION OF FOREIGN PROTEIN.

JOHN B. GRANT, M.D.

(From the Clinic of Internal Medicine, University Hospital, Ann Arbor, Michigan.)

I desire to report a crisis occurring in typhoid fever concurrent with the administration of foreign protein in the form of diphtheria antitoxin.

The patient, H. C., age 19, entered this Clinic the 20th of October, which was the fifth day of her illness, with the usual history of the onset of the disease. She presented a positive Widal test and blood culture. The course of the illness showed no complications except the marked tympanites of a severe case. The patient's temperature curve in the second week remained persistently above 104 deg. F. with a pulse between 100 and 110 and a white count averaging 3000. On the morning of the nineteenth day of the illness she complained of a sore throat. On examination this showed a membrane which gave a positive culture. At noon of the same day the temperature was 106.2 deg. F. and the leucocyte count was 5200. At 2 p.m. the temperature was 108 deg. At 2:15 p.m.

10,000 units of antitoxin was given intramuscularly, followed at 2:45 by 10,000 units intravenously. The sole manifestation of this was a chill beginning one-half hour after the intravenous injection and lasting forty-five minutes, accompanied by a slight delirium. The temperature began to fall immediately after the injection and had reached 99.1 deg. F. at 3 a. m. the next morning. Leucocyte counts made during this period showed a maximum of 6,000, two hours after the antitoxin was given. In ten hours it had fallen to 2,300, which has been constant since.

The intravenous injection of the antitoxin introduced a considerable amount of foreign protein into this patient's circulation. A number of observers have recently investigated the therapeutic value of the intravenous introduction of protein in typhoid fever. Various types of treatment have been followed out with specific and nonspecific protein. Also some investigators have used nonprotein substances.

Between 1913-1915 there were about 550 cases of intravenous injection of typhoid vaccine in the treatment of typhoid fever. McWilliam's (1) draws the following conclusions in regard to these cases:

1. Fifty per cent. of the disease was cut short one to several weeks.
2. A few deaths occurred where complications had already set in, especially hemorrhages.
3. No one type of specific vaccine is of especial importance.
4. Best dosage was 150 to 250 million.
5. The injection calls forth:
First a leukopenia, later a leucocytosis with a slight increase in the eosinophiles.

Of the above results, the most important contributions were made by Ichikawa (2) and Kraus (3) who obtained termination by crisis in 20 per cent. of their cases.

Paulicek's (4) conclusions are of a special value because none of his sixty-eight cases came under observation until they were two weeks old and his mortality was 34 per cent., although the mortality in his control was even higher. He shows that to be of benefit the injections should be given in the first two weeks, for Lowry with Luksch and Wilhelm receiving their cases from the same trenches, only earlier in the course of the disease, had a mortality of only 11 per cent. Secondly, injections should not be given in complications of the circulatory system.

All these reactions, however, were due to the injection of specific typhoid organisms. Ichikawa and Kraus early determined that the reaction was not specific. The former used typhoid vaccine with equally good results in paratyphoid fever and Kraus obtained similar results in typhoid fever with colon vaccine. Lüdke (5) confirmed Kraus's results in eleven of a series of twenty-two cases by using colon vaccine. In ten others he used 4 per cent. deuter-albumose. In five of these he obtained a crisis followed by immediate convalescence. There were no fatalities. Lüdke found that as a rule in one-half to one hour after the injection there appeared a more or less heavy chill which lasted from one-half to three-quarters of an hour, followed by a rapid rise in temperature of one and one-half to three and one-half degrees F., which in forty-eight hours fell by crisis to normal. In some cases the temperature fell seven degrees F. in six hours. This period was accompanied by a drenching sweat; but in no case was there a detectable weakening in the pulse nor was there any untoward reaction. In contradistinction to the use of specific vaccine, there was never a leucocytosis. He concluded that the explanation was the same as a crisis of pneumonia.

Mittlander, (6) in his opinion, obtained improvement in some hundred cases by using intravenous injection of 1 cc. of 20 per cent. caffeine and 10 per cent. camphor followed by a saline solution, thus giving slight evidence that any agent not necessarily protein, which excited a chill, may bring about a sudden immunity to infection.

Janeway (7) in the Congress of American Surgeons and Physicians, refers to a termination by lysis of typhoid in a patient who had a chill following transfusion for hemorrhage.

Coming now to the explanation of the phenomenon of a crisis occurring after an intravenous injection of foreign protein in typhoid, we are flooded by a multiplicity of theories which leave us no better off than before. Gay and Claypole, (8) Gay and Chickering, (9) Jobling and Peterson, (10) Teague and McWilliams (11) are perhaps the ones who have attempted to investigate the mechanism most thoroughly. Teague and McWilliams have summarized the work of the others in a recent issue of the *Journal of Immunology*.

However, before giving their summary it would be of interest to touch briefly on some of the work they have been doing on the bacteriolytic power of normal human sera. Teague

and McWilliams found that one cc. of the sera of twenty-four non-typhoid patients would kill from one to one hundred million typhoid bacilli. In a series of forty-four typhoid patients, thirty showed the same bacteriolytic power. From this they conclude that typhoid fever cannot be a septicemia.

The same authors summarize three different views regarding the pathogenesis of typhoid fever:

1. It is a blood disease, a typhoid septicemia.
2. It is a primary infection of the intestinal follicles. The mesenteric lymph glands are next infected and finally the typhoid bacilli break through into the blood where they multiply, producing a secondary septicemia.
3. In typhoid fever the bacillus first finds its way from the alimentary tract to the lymphopoietic system including the spleen and from it, it invades the blood stream. The presence of the bacilli in the blood represents merely an overflow from the lymph organs.

In view of their experiments, Teague and McWilliams rule out the first phase of a primary septicemia as unobtainable. Furthermore, since the serum of typhoid fever patients is only exceptionally of low bactericidal power, the view that the disease is a septicemia following the infection of the intestinal follicles and mesenteric glands must be discarded. *Ipso facto* there remains only a third hypothesis.

Having thus claimed to have arrived at a definite conception of the pathogenesis of typhoid fever the authors next proceed to outline the various existent theories of the mechanism of the cure of typhoid by the intravenous injection of protein. We shall not attempt to discuss them but leave them with you to consider:

1. Hyperleucocytosis which is chiefly upheld by Gay. (8)
2. Paralysis of the heat center suggested by Paltauf. (12).
3. A rapid mobilization of antibodies advanced by Bull. (13).
4. Setting free of nonspecific ferments, as suggested by Jobling and Peterson (10) in their theory that the cure is affected by the increase of the protease and lipase, the former producing a more rapid splitting of the toxic protein fragments to lower nontoxic forms, while the increase in the lipo-

lytic ferments may have some influence in the destroying of the typhoid protein.

5. That fever is due to repeated anaphylactic reactions, due to the patient becoming sensitized to the proteins of the infecting microorganisms and as the latter enter the circulation, repeated low-grade anaphylactic attacks occur without producing complete antianaphylaxis. The sudden introduction of a large amount of antigen under these circumstances might completely desensitize the patient.
6. The theory of the authors themselves that typhoid fever is a local disease and that as the blood serum is strongly bacteriolytic, the intravenous injection of vaccine causes a more active passage of bacteriolytic substances from the blood capillaries into the "local lesions" with a destruction of the typhoid bacilli.

We present these views for your consideration without drawing any conclusions from them.

We would draw your attention to the fact that we are entering upon a new field in the therapeutics of infectious diseases.

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DISCUSSION.

DR. L. HARRY NEWBURGH: There can be no doubt in your minds that we have approached an exceedingly difficult subject. There are, however, certain general conclusions which I think can be drawn. In the first place, we are at the beginning of what appears to be an exceedingly important method for the treatment of infection. Although the statistics are still confused, there seems to be no question

that the injection of protein into the circulation does in a general way affect favorably all sorts of infections. For instance, we know of the innumerable reports of improvement in various infections following the injection first of specific vaccines and then later of mixed vaccines. Those cases always did better when the vaccine was injected intravenously. There are reports of a large number of typhoid cases in which there was a very general decrease in the mortality and in the duration of the disease. About 30 per cent. of those cases had a crisis with rapid convalescence. I think we can also feel assured that this method is not a specific therapy. The earlier observers thought that they were working with vaccination. However, the injection of any protein into the circulation will produce the phenomenon which Dr. Grant has reported. In this latter instance globulin injected into a girl with typhoid fever causing a striking reaction, the temperature going from 108 deg. to normal in twelve hours.

There has been a great deal of discussion as to whether the improvement was produced by the leucocytes. In fact, the earlier workers had in mind the production of leucocytosis. Ludke has shown that one gets the same reaction in the absence of leucocytosis and we have here such a striking example. Of course, workers in this field have done what is human. They have obtained some results and have tried to explain them with a rational theory. Any hypothesis is neither good nor bad at the present. None of the explanations is complete. They are all confused, and for the present it is better to admit that we do not understand the mechanism. We should simply realize that this is an important new therapeutic procedure for all infections.

DR. PAUL DEKRUIF: It seems to me that my talking in a clinical society is rather out of place. The thing which impresses me most about the literature which Dr. Grant reports is the total lack of experimental work on this subject. All kinds of opportunity presents themselves to settle this question in a rational manner with experimental infections in animals, and that apparently has not been done at all. Besides the treatment of typhoid, remarkable results have been obtained in rheumatism by Miller of Chicago who used phylacogens, etc. Very recently Kraus from Argentina has used a normal beef serum in the treatment of anthrax with remarkable results. It seems to me that in all this work with non specific proteins there has been a lamentable lack of control work in the first place and in the next place, a lamentable lack of work with animals. I have no doubt at all that there was something more in this case than the effect of diphtheria. At the same time it seems to me that before this thing is applied in a wide-spread manner to therapeutics, there should be some decent experimentation upon it. Dr. Novy, whom I consulted about this question before I came, thinks that there might be one explanation made. I must confess that I have absolutely no explanation because the experimental work is so meagre that one cannot make one. Dr. Novy believes that there may be here a condition of immunity in these infections which is masked by certain blood colloids, and when you inject a substance to produce a chill, the substance may remove the masking substance and in that way liberate

the immune bodies, which will control or abort the infection. And we had intended, if I had not been called away, to approach this subject in relapsing fever which is a particularly advantageous disease to use in animals because animals may get a third or fourth attack. At the same time you may show immune substances in the animals while the animals are suffering. We had intended to inject into such animals certain complex substances such as sugar, starch, kaolin, etc., and then see if there would be a decrease in the organism. For instance, joint infections in rabbits produced by streptococcus would offer a very good field for experimental approach to this question. All the six theories which Dr. Grant has mentioned should not be given the dignity of theories because there is so little to back them. I must say that of all the clinical work that has been done on the question, that of Gay is by far the most careful; but of course, he used specially treated typhoid organisms. It seems to me that you would be very fortunate if you were to get a nice typhoid epidemic of thirty or forty cases and go carefully about the thing and then be fortunate enough not to have a simultaneous occurrence of diphtheria. Then use straight serum globulin or normal serum and not diphtheria antitoxin, because in biologic questions it is desirable to use as little complicated materials as possible.

DR. QUINTER O. GILBERT: Dr. Grant said he didn't have a leucocytosis in this case. Technically he did have such. The patient had previously 2,000 white blood cells which went up to 6,000.

DR. HAROLD DEB. BARSS: It might be interesting to state that last year we were treating a case of chronic actinomycosis of the abdominal wall in the Surgical Clinic in which the patient was running a temperature of 101 to 101.5 degrees. We injected Coley's mixed toxins intravenously and the patient developed a chill, temperature of 107 degrees, and became delirious. The next morning the patient's temperature was subnormal. His condition then improved remarkably and he left the Hospital, not entirely cured, however. The incident bears out the same finding of a foreign protein injected in a case of chronic infection.

DR. GRANT: I only wish to draw attention to the fact that in the literature where specific white counts have been made after injection of nonprotein vaccine, there has been no marked leucocytosis, as there has been after the injection of specific vaccines.

REVIEW OF A MONTH'S RADIOGRAMS.

JAMES G. VAN ZWALUWENBURG, M.D.

(From the Clinic of Roentgenology, University Hospital, Ann Arbor, Michigan.)

The series exhibited comprise reproductions from 32 cases of general interest. In connection with a case of multiple dactylitis, the following observations may be made:

This is an example of a condition which we see comparatively rarely here but is quite common in some other clinics. It is one of multiple

dactylitis and the question is raised whether it is syphilitic or tuberculous.

I have seen so few examples of this condition that I am frank to confess that I am not well posted. I have already given the opinion that I thought it luetic. On reviewing the literature hastily, we incline to the opinion that it is tuberculous. As a matter of fact the literature is quite unsatisfactory, there being contradictions not only in the text but also in the examples reproduced. We gather that lues in its earlier stages is an almost purely periosteal process and the shaft of the long bones is always seen as a distinct sequestrum, while tuberculosis rapidly leads to a destruction of the sequestrum and the shaft disappears completely, as it is here shown. However, the same thing occurs in lues. I venture the suspicion that the determining factor in the production of this picture may be a secondary infection of the sequestrum by pus organisms, which is a common occurrence in either. Perhaps it would be safer to say that the differentiation can not be made with certainty.

In connection with a series of radiograms of the chest the following observations may be made:

I am showing this slide to introduce the subject of the significance of the bronchovascular tree.

The system of markings that we have called the "bronchovascular tree" is a striking feature of every good chest radiogram and has occupied the attention of every one that has done any amount of chest work. It has been the basis of a great amount of speculation and theorizing. A few years ago there was a very sharp controversy in America and in Europe as to the exact anatomic basis for these shadows, resulting in considerable experimental work on excised lungs. Perhaps the most extensive work was done in the Phipp's Institute by Dunham, Boardman, and Wolman. As a result of their observations the conclusion is reached that these shadows represent at least three components, viz., the bronchial tissues themselves, the peribronchial tissue including the lymphatics, and the blood vessels and their contents.

Some of us now would like to go one step farther. Obviously it is conceivable and even likely that different pathologic processes react differently on these three components and it would be to our advantage if we could distinguish which was the most affected, whether the vascular tree, or the bronchial tree, or the lymphvascular system. Some evidence bearing

on this problem has been accumulating for some time.

For instance, by means of the stereoscope it may be seen that in many cases these shadows have anastomoses in the periphery of the lung. Now, obviously, such shadows can not be bronchial in origin for the bronchi do not anastomose, they must be vascular, and probably venous at that, for the venous anastomoses are much more free and in the larger trunks than the arterial. Such a picture we have termed the reticulated type of B-V tree.

On the other hand, we sometimes see the tree dividing regularly into two branches, dichotomously. This occurs especially in long-standing cases of asthma where we know that pathologic changes in the bronchi are common and the inference is that these more nearly represent these anatomic structures. This type we have named the articulated type of B-V tree.

Sometimes we see a system of lines and markings that can not be classified in either of these types, they are irregular and disorganized; apparently replace the normal lung architecture, usually in an apex, and usually in the tuberculous. Dunham thinks these represent tuberculous infiltrations in the lymphatic system, at least in large part. Of course, when we consider the occlusion of lymphatics and subsequent diversion of the stream and its metastases, it is easy to understand its disorganization and irregularity.

Another factor that enters the problem is the blood in the capillaries of the lung. This represents a very considerable mass; as much as one-fifth or even one-third of the entire blood mass of the body may find lodgment in the lungs, it is alleged. This will naturally throw a deeper shadow over that portion of the chest where the lung is the thickest, namely, near the bases. Accordingly we find individuals that are relatively dense below, the density increasing progressively from above downwards. Ordinarily, the healthy chest is fairly evenly illuminated. This is particularly true of cases that have circulatory difficulties, and the roentgenologist knows to his regret that "heart cases" are notoriously "thick" and difficult subjects.

This first slide presents a case with a substernal goitre, with a large heart and an enormous dilatation of the bronchovascular tree. Unfortunately, it is virtually impossible to reproduce the finer markings of the lung texture on the lantern slide, and the anastomotic nature of the shadows can be demonstrated only by

means of the stereoscope. Judging from the size of the heart, we conclude that these are vascular in origin, but it is not at all clear that they are exclusively of that nature.

The next is an example of a frank cardiac case with enlarged bronchovascular tree below and a gradual increase in general density from above downwards. We interpret this as demonstrating a dilatation both of the large vessels and of the capillaries of the lung.

The next is a similar case. The plate is rather "thin" in quality because of an unexpected thickness that did not appear on the surface (capillary congestion), and the plate was undertimed.

Here is another cardiac case of a slightly different type. Not only is the B-V tree enlarged in the lower portion of the thorax but in the upper lobes as well.

We have additional information coming from cases not primarily cardiac, but inflammatory. For instance, last year I saw a nurse with a pain in the side. The only radiographic findings were an increase in the finer branches of the bronchovascular tree in the axillary region near the pleural border, probably about one inch beneath the parietal pleura. I reported at that time that presumably she had some sort of infection leading to a congestion at this point and that she might develop a pneumonia. Two days later she had developed a pleural effusion which I was able to follow radiographically until it disappeared. After her recovery I made another set of plates demonstrating that the appearance seen at the first observation had disappeared. I think, therefore, that I am justified in assuming that this represented a local hyperemia, and was an expression of a local inflammation.

Recently I have seen a somewhat similar case.

The next slide reproduces the radiogram of a little girl with acute attacks of dyspnea and coughing, whose side is fixed, the diaphragm moves little if any, the resonance is normal, all breath sounds are distant, no whispered voice, no fremitus, no expiratory murmur. Radiographically, we find this portion of the chest has about the same density as the other, but is almost free from shadow representing the B-V tree, as is easily seen by comparison with the opposite side. (We can not compare the lower portions of the thorax in this way because the cardiac movements serve to erase these markings in the left lower.) We are inclined to confirm the clinical diagnosis of bronchial

obstruction. But that does not explain this asymmetry of the B-V tree. The other features are easily explained; the heart drawn over to the diseased side by the relative atelectasis, the fixation of the left diaphragm, without thickening of the pleural shadow or reduction of the width of the interspaces. I can see no other explanation than that there has been a change in the circulation of that lung, and the difference in the development of the B-V tree is a measure of the reduction of the blood content of the pulmonary vessels.

This last slide represents the conditions in chronic asthma. Here the B-V tree is distinctly of the articulated type.

These are shown here as examples of the differentiations we are trying to make in the study of our chest cases. I believe this is a more promising field than any other in radiography at the present time.

DISCUSSION.

DR. JOSEPH A. ELLIOTT: (Discussing the dactylitis case) I was of the opinion that this was syphilitic rather than tuberculous. It seems to me that if this were tuberculosis, we would have involvement of the joints. A tuberculous process which would be inflammatory should show changes in the joints. It may be due to the fact that this child is so young that we get so much destruction of the bone. Text-books say that tuberculosis destroys bones and syphilis does not, but due to the age of the patient, I am of opinion that we might well have such extensive bone destruction as there is here due to syphilis.

DR. CYRENUS G. DARLING: I have seen two or three cases similar to this one. I recall one case of a child which came to the Clinic ten years ago with an empyema. This was taken care of and drained for some time, and then afterwards developed a dactylitis I believe on the little finger of one hand, and I think that both hands were involved, one finger on each hand. This case was treated in the

Medical Clinic and I think the diagnosis of tuberculosis was made. This child was under observation for four years and the two diseased fingers were very much shortened but never developed into an open sore. I cannot describe the condition of the bone because they were not X-rayed. I was under the impression that this was tuberculosis and I think it was so stated, the child being less than two years old at the time the condition developed. I think I have seen only two other cases in this Clinic besides the one I have mentioned, and those were both young children.

DR. VAN ZWALUWENBURG: (closing the discussion) It seems to be distinctly "up to the radiographer" to justify himself in a great deal of this chest work and the problem is by no means simple. If you will read Osler you will find that he says, "more than any others, radiographers need the salutary lessons of the dead house to correct their visionary interpretations of shadows, particularly of those radiating from the roots of the lungs." In all humility, however, I must differ with Osler. I see no certain way in which the dead house is going to solve our problems, because they are to a large extent problems in the actual circulation in the living lung, and when the individual dies, the circulation stops and the distribution of the blood is entirely changed.

I have tried to approach the question by means of Valsalva and the Mueller experiment with questionable results. I think of trying to solve the problem with animal experimentation. Perhaps I can persuade a surgeon to help me with a dog, and actually ligate certain vessels and see what happens. That would give us experimental evidence.

The time is past when the radiographer can look to his plates for empirical signs which shall tell him all that he cares to know, or can by a *priori* reasoning reach a satisfactory explanation of the things he sees. We have reached the stage where we must analyze all of the evidence we find on all of our plates, determining the morbid anatomy and finally try to interpret them in terms of disease processes. If it were not for the excuse that our branch is young we should appear ridiculous, and that excuse will not serve much longer.

Eskay's Neuro Phosphates.—The Council on Pharmacy and Chemistry reports that Eskay's Neuro Phosphates (Smith, Kline and French Co., Philadelphia) is claimed to contain alcohol 17 per cent. and sodium glycerophosphate 2 grains, calcium glycerophosphate 2 grains, strychnine glycerophosphate 1/64 grain, in each dessertspoonful. It is called a "Nerve Tissue Reconstructive" and the advertising claims are based on the discredited theory that certain disorders are due to a deficiency of phosphorus in the nerve structures of the body, and that glycerophosphates are assimilated more readily than ordinary phosphates. The Council held Eskay's Neuro Phosphates ineligible for New and Nonofficial Remedies because of the unwarranted therapeutic claims

made for it, because the combination is irrational and because the name is not descriptive of its composition. (*Jour. A.M.A.*, Sept. 29, 1917, p. 1102).

Some Misbranded Nostrums.—The following "patent medicines" have been declared misbranded under the U. S. Food and Drugs Act: Sherman's Compound Prickly Ash Bitters, containing 20 per cent. alcohol, buchu and an emodin bearing drug. "Thorn's Compound Extract of Copaiba and Sarsaparilla," a mixture of copaiba and sarsaparilla extract. "Tarrant's Compound Extract of Cubebs and Copaiba," a mixture of copaiba and cubeb extract. V. I. G., an aqueous solution of glycerin, morphin, berberin, hydrastin and salicylic acid. (*Jour. A.M.A.*, Oct. 20, 1917, p. 1374).

The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

Arthur M. Hume, Chairman.....Owosso
 Guy L. KleferDetroit
 W. J. Kay.....Lapeer
 W. J. DuBois.....Grand Rapids

EDITOR

FREDERICK C. WARNSHUIS, M.D., F.A.C.S.
 Grand Rapids, Mich.

All communications relative to exchanges, books for review, manuscripts, news, advertising, and subscription are to be addressed to Frederick C. Warnshuis, M.D., Powers Theatre Building, Grand Rapids, Mich.

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January

Editorials

EVERY DOCTOR IN THE MEDICAL RESERVE CORPS.

What an ideal situation it would be, if every doctor in the United States who is mentally, physically and morally fit, was in this Corps.

The time is coming, and in the immediate future, when the Medical Reserve Corps of the Army must be immensely augmented, and so as to enable the Surgeon General to have at his command for immediate assignment, as conditions demand, a sufficient number of trained medical officers, let us take the above thought seriously.

We all know, from past history, the conserving value of an efficient medical corps, and this means number, as well as training.

A statement made by one high in authority in the Surgeon General's Office, "that our fighting forces would be disseminated by sickness and casualties in six months, were it not for an efficient army Medical Corps," clearly emphasizes the importance of every doctor in the United States, meeting the requirements above referred to, accepting a commission in the Medical Reserve Corps of the United States Army.

The struggle in which we are now engaged, and for which we are preparing to take such a prominent part, depends for its success as much upon the medical profession, as it does upon

our combatant forces, and while we do not know that any such intention as herein suggested is in the mind of the Surgeon General, it would at least give him the necessary Corps of medical officers, upon which to draw, and thus serve the best interests of our country, and the best interests of the medical officer serving.

NEW YEAR.

Nineteen Eighteen ushered in with more or less forebodings as to what its days will record upon the pages of history and with thoughts as to what changes will be met in our personal affairs should not envelope us in gloom or cause us in anyway to slow up in our work. Neither should we procrastinate our time or acquire the "putting off" habit waiting to see what trend national affairs assume.

If ever there was need of New Year's resolutions that need now demands universal observance. Resolve now, and firmly, to lend our unreserved support to assist our Government to attain its avowed ends. Resolve to bend every effort to accomplish the universal observance of the rules of food and fuel conservation. Resolve to exert all your inherent ability to become a more capable and efficient physician or surgeon and to contribute your part toward the advancement of scientific medicine and organizational progress. Become an earnest, eager, conscientious member of our profession that is being recognized as a potent factor in the war—receiving recognition, the like of which has never been accorded to us.

No matter who or where you are it is your privilege and opportunity to so do that this year will witness our profession achieving great feats, exhibiting wholesome influences and creating rapid steps of progress that will ever redound to our credit. There is no place for the laggard or he who persists in holding fast to those principles and practices that belong to the past. Events call for energetic progressive activity. It becomes necessary for each one to hustle to remain abreast.

To that end then may we all resolve to do our part. The accomplishment of these duties will cause the close of this new year to be proclaimed a truly happy one. Happy because of the satisfaction that will be experienced by reason of duties and obligations faithfully and successfully performed.

COUNCIL MEETING.

The regular annual meeting of the Council of the Michigan State Medical Society will be held in the Hotel Statler in Detroit on Wednesday, January 16, 1918, at 9 a. m.. The regular order of business will be observed and such other business as may come before the Council as National Events or organizational affairs may indicate will receive official consideration.

Signed,

W. T. DODGE, Chairman.

F. C. WARNSHUIS, Secretary.

DUES.

The 1918 Society dues become payable January 1st. Members have until April 1st to pay these yearly dues. After the latter date members whose dues remain unpaid will be placed upon the suspended list.

County Secretaries are burdened with many duties demanding much of their time. Do not add to their burdens by causing them to take active steps to collect your dues. Do your part to lighten their work by promptly sending them your check. Do it now, lest you forget.

BACK AND FORTH.

Up until a few months ago we were all going "Carrell-Dakin" crazy, and this method of wound sterilization was receiving universal employment whenever infection was encountered. Dakin solution was also being employed in many other conditions with a faith unbounded.

Then comes Morison with his "Bipping" and there flocked to his method of wound sterilization a goodly number of adherents. "Bipping" was frequently resorted to and glowing results proclaimed.

Again, a new voice is heard where Sir Monihan stated at the Chicago meeting that "Dakin's" and "Bipping" were of no potent value and that control cases did just as well with simple saline flushing, or "salt packs" as those subjected to these or both of the other methods.

We have thus, once more, encountered the "Back and Forth" swing of the pendulum of opinion and await the determination of the happy medium. We confess we were enthusiastic over Dakin and have not all together lost faith in it in selected cases or conditions. Likewise "Bipp" won our respect as also the "Salt Packs." However, all of them have been found wanting at times and we are forced to the conclusion that neither are specific or all sufficient.

They are all valuable in certain conditions but demand rigid observance of technic to achieve the greatest beneficial results. It will only be after extended investigation, observation and reviewing of large groups of cases that their inherent value will be appraised. To that end we urge a broad recording of personal observations and experiences with these three methods.

Editorial Comments

From the publications of Wayne and Genesee County Societies we propose selecting from month to month the more interesting communications from their members in active service and to publish them for the benefit of our members. Genesee County is putting out an extremely interesting "News Letter" and the Wayne County War Bulletin publishes communications from its members who are at the front. These letters will be found under Correspondence.

Again we extend the request to members to write us and impart their experiences in active service. We regret that thus far we have failed to receive response to our several letters sent to members of the Shurley and Harper Hospital Units.

The Council will determine the time and place for holding our next annual meeting. The opinions expressed are in favor of a June meeting. Definite announcement will be made in our next issue.

This issue exhausts all of our original manuscript supply. We again urge that manuscripts be sent for publication.

Correspondence

Flint, Nov. 28, 1917

Editor:

Some days ago I received a communication from the Neal Institute, Grand Rapids, offering a reward of \$25 per. I wrote on the margin of the letter the query, "Who eventually pays the twenty five," intending to pass the whole thing along to you to add to the gaiety of your sanctum. It was tossed across the table to the virtual manager of this office who incidentally does the heavy type-writing therefor. And now comes

Chapter II. Fate in its hocus-pocus ordained its return to the Neal Institute and from that concern

I received this morning a reply of which the following is a copy:

"Grand Rapids, Mich.
534 Wealthy St., S. E.

November 26, 1917.

C. B. Burr, M.D., Flint, Mich.

Dear Doctor:

I am pleased to acknowledge receipt of your favor of recent date, asking who eventually pays the \$25.00 commission, and I want to explain to you that I do a strictly cash in advance business. I collect from the patient in advance and pay the doctor in advance, consequently, no one eventually pays anything.

I understand some doctors have been mistreated by former owners of the Neal Institute, but if you bring a patient, please remember that the patient is expected to pay cash in advance before starting treatment, and I will very cheerfully pay you \$25.00 in advance and your railroad fare just as soon as I have completed arrangements with the patient. If you or any of your medical friends bring a patient, rest assured that you will be given a square deal, and there will be no tiresome delays or evasions of responsibility. I trust this answers your question fully, and I shall be pleased to make your acquaintance at any time you visit Grand Rapids. Hoping you will bring us a patient sometime soon, and with kindest personal regards, I am

Yours very truly,

PERRY MILLER."

Although the sarcasm in my inquiry would be to the average mind of almost brutal frankness, it was evidently too subtle and I am regarded as a receptive candidate for what may be euphemistically terms the "subvention." Fortunately, what remains of a sense of humor, shell-riddled during the last three and one-half years, saves the situation.

I lack acquaintance with Perry.

With kind regards, I am

Very truly yours,

C. B. BURR.

Letters From Enlisted Members.

Devonport, England, Oct, 30, 1917.

Dear Friend:—

I have had a little time tonight; I thought I would write a few lines to you.

I went to London and was assigned for a time to a Military Hospital here in Devonport. This town is part Plymouth. From the harbor here the Pilgrim Fathers sailed. Also here Drake met the Spanish Armada. He was bowling on the same green as is here now when they told him, He said "We will finish our game and then finish them."

I am getting some surgical experience here, especially in the care of cases. I don't think much of their surgery. They have a great stunt of "Bipping" their cases, they open up wounds and paint or swab them with Bismuth, Iodoform and Paraffin mixture, hence they call it "B. I. P. ping." They all slough just the same. We have X-Ray and Lab. facilities, no Dakin treatment at all.

Army life is hell, but in we are, so what is the use.

I rather expect to be in France when you get this. I might stay here until spring, but some are going continually. Get ready for a struggle, it is going to tax U. S. A. before we are through.

It rains here every day so it must be fierce at the front.

I did a lumbar puncture on a meningeal case this p. m., got bloody fluid under considerable pressure, a piece of the man's skull is gone.

Met Duke of Connaught and Waldorf Astor last week, but to tell the truth I would rather meet you all in Flint. I would like to know the news of the fellows in Flint, more of the fellows must be gone by now. How are the slackers? Are any of them getting uneasy? God knows they will have their chance yet; they will have to get in.

The poor English people are very much "strafed" as they call, they have made tremendous sacrifices. The English are somewhat shocked by the Americans but the Australians and Canadians broke the way. The Australians are best paid in the war.

It is said that one of the Australians did not salute an English officer in London, upon being stopped and asked if he was a soldier, he replied, "No, I am a fighter." The Australians have been bearing a great deal of the brunt of the fighting I should judge by the wounded we sometimes get right from the front.

We, with all Allies, are hoping for the U. S. troops, guns and machines. The English have done more than we realize at home; they have not shirked a minute. It is only too bad we were not in before, but we all know it takes great provocation to make 100 million of one mind as we all know they are now.

Could use a few smokes, can't buy them here. Do not send expensive ones, a man who smokes a Cinco is a bondholder here.

Well I guess this is all this time. Write me the news of the fellows.

Yours,

Henry Cook.

S. C. Concentration Depot,

Garden City, Long Island, N. Y.

Dear Friends:—

Your letter sent to Fort Riley was forwarded to me here. Congratulations on your new honors. I think the new officers of the county society are quite all right.

Lt. Evers and myself, you will remember went to training camp at Ft. Riley together. We spent a pleasant and highly profitable ten weeks there. As far as possible the Commanding officers gave us a choice of assignments. Evers had the choice of several western cantonments and chose Camp Travis, and has been assigned to a Field Hospital there. I was offered an assignment in the Aviation section, which is a part of the Signal Corps.

I left Ft. Riley Oct. 21st, stopped over a day in Flint and reported here Oct. 24th. I found Lt. Reid of our Society here. Had it rather easy for three weeks, but as my family was in a village near Camp, I was able to get off considerable.

We put in some pleasant hours in seeing the sights of the vicinity.

The Camp is about twenty-five miles from N. Y. City, and is an ideal location. The Camp as the name implies is a place where Aero Squadrons are brought and equipped for foreign service, after being trained in various camps in the west and south.

An Aero Squadron consists of 150 enlisted men and nineteen officers. The Medical detachment is composed of an Officer and four enlisted men, a Sergeant and three privates. The Medical equipment is liberal and adequate. The Squadron is equipped (or will be abroad) with eighteen aeroplanes, eighteen trucks (motor) four automobiles and seventy-two machine guns. Each man and officer is furnished an automatic pistol.

The quarters here are permanent and steam heated, in fact this branch of service seems to be getting the best of every thing.

Evidently the "powers that be" are not stopping at expense to get the aviation service up to the highest notch of efficiency.

I am assigned to the 10th Aero Squadron, one of the oldest in the service, and the commanding officer admits that it is the best.

We will doubtless go across in the near future, no one knows the exact date and wouldn't be allowed to let it out if he did know. In fact no one going would care to have publicity made of the event for various reasons.

I see no reason why copies of your sheet would not be allowed in the foreign mails. If I should be fortunate enough to receive one I will be greatly pleased, as news from those in service and at home is like food to a starving man.

Regards to all M. D's.

Sincerely,

Lt. C. S. Ballard.

10th Aero Squadron,

A. E. F. via New York.

Dear Friend:

Allow me to greet you as my worthy successor, and I trust that you and the new president will instill plenty of enthusiasm into the members of our society. They have always had plenty of it, but at this time need to call in all they have held in reserve.

I was very glad to receive a copy of the Letter Box, and feel that the idea is not only an excellent one, but original with our local society, at least I have not heard of a similar publication through any of the physicians I have come in contact with, and all parts of the country seem to be pretty well represented. I know of no other way in which our members may be kept in touch with each other so well.

Was interested in learning of the safe arrival, on the other side, of Clift, Randall and Cook. They are going to see some interesting work from the first. Who is going to be the next one? Nobody knows of course, but we hope they will all be given a chance to show their mettle. Anyone left on this side is going to be a disappointed man.

Have had an exceptionally good opportunity to get first hand facts regarding the overseas pro-

gram, both from a medical and military standpoint. We have with us an English officer, Capt. Walsh, who has spent five years in the British army and who is giving instructions in gas defense. He has spent three years in this war and it is certainly reassuring to see the grim determination and confidence in ultimate victory that he displays, and he claims to be of the same trend of mind that the whole British nation displays. It is certain that the British army has been lifted out of a condition of chaos to that of the most powerful fighting machine.

There are French officers in camp also, and one, the Count de Telier (I do not know if that is spelled right or not) is a very close friend of Capt. Ney of New Orleans, and through him I have made his acquaintance. He surely does not underestimate the power of the enemy, and has been in places that impressed that fact upon him, but he is of the type of French soldier that we read about. He is in earnest and out to win.

Every time I meet him and talk to him I do not dare entertain the hope that I may continue to see service on this side, for if I do I am a coward. From the information received in these conversations the conclusion may be easily drawn that the medical department is playing a large part in the efficiency of the army, and from the prompt aid that is given the death rate is greatly reduced from the severe infections that are so common.

In our own army the medical department never was so efficient nor held such a strong place in the control of line but it has not the strength yet that should be vested in such an important body. The power necessary will come only when there are more medical men of high rank.

Your attention might be called to the fact that a bill was introduced in Congress, during the last session for the purpose of increasing the rank, and incidentally the authority of the medical officers. During the stress of the last few days of the session the bill was allowed to go over. Now there is but one thing to do, and that is to bring the bill back to life again at next session. As you may know the men already in the army cannot or dare not bring any influence to bear in the passage of that bill, so it is up to the men at home. Genesee County Medical Society has never been slow to see the good in a worthy cause and has always been ready to lend a supporting hand. Think this over and start something, and when you have done it give an account of yourself in the Letter Box and I'll be anxiously waiting my copy.

Was glad to hear of the way Flint took care of the second Liberty Loan. I'll have to flatter myself into realizing that our town now has a place on the map. A few years ago if I was away from home I always had to explain where Flint was. That's not necessary any more. This camp is a thousand miles away but the answer is always the same "that is one of the big automobile towns."

A number of Flint physicians have written letters and they have been greatly appreciated. Not all have been answered, but kindly thank them through the Letter Box and assure them

that each and everyone will receive an answer some day.

With best personal regards, I am

Yours truly,

R. S. Morrish.

Copy of Report Sent to Colonel Oliver.

U. S. Army Hospital No. 3, France.

To Colonel Robert Oliver, Chief Dental Corps,
U. S. A., France.

From Major Angus McLean, M. O. R. C.

Subject, Dental, Maxillary and Intra-maxillary Surgery.

As members of the Medical Committee who recently visited Italy to inspect and observe the Sanitary, Medical and Surgical services, we appreciate the opportunity of submitting the following to you on Oral and Intra-dental and Intra-maxillary surgery. We were greatly interested in this special division of surgery, as so much original and splendid work has been done in regional surgery of the jaws.

We inspected several hospitals given over to this line of work entirely. The largest was located in Udine. They had about four hundred and fifty patients when we were there, and had treated over three thousand since the war began.

The hospital was in charge of Professor Pemo and his assistants. Each case was photographed when received, and then X-rayed. In many of the severe injuries, the necessary operation was done in two or three steps, sometimes more. They had intra-dental appliances of all kinds made to suit each case. Dental impressions and models were taken after operation, and every step of the procedure could be followed.

They save all teeth and bony tissue possible, and use bone transplants and inlays and were careful to preserve the mucous membranes. They kept the fragments well braced by contrivances to prevent contraction until the necessary repair had taken place.

They had a large laboratory in which there were twelve men engaged in making intra-dental splints, models, etc.

We had seen several of these hospitals in Europe and it was our opinion that this was the most complete, and from the number of cases that we saw afterwards we were enthusiastic over the work the Italian surgeons were doing in this branch of surgery. Their patients seem to masticate well afterwards, and very few were troubled with drooling. We were greatly surprised at the end results they had obtained, for we had not heard of their splendid work. They kept full records of all cases, and in their museum had the photographs, X-ray pictures, impressions, models and busts of their patients.

They were very courteous to us and anxious to explain all details of their work, and informed us that they would be very proud to have a visit from some of our American dentists.

The whole medical service of the Italian government, we believe very perfect but none was more efficient than this line of work. We fully appreciated our opportunity of seeing it, and trust that some

of our American dentists may visit these hospitals.
November 13, 1917.

Yours very truly,

Major ANGUS McLEAN,

M. R. C. U. S. A. Chairman Com.

Lieut. BROR H. LARSEN,

M. R. C. U. S. A. Secretary Com.

Major H. C. COBURN,

Commanding Officer, Base Hospital, No. 17.

U. S. Army General Hospital No. 1,
Fort McHenry, Md., Dec. 13, 1917.

Dear Editor:

Perhaps a little news of the vicissitudes of one now in the service, though not as interesting as if from the front, may be of some interest to the general profession of Michigan as well as those in particular who are commissioned and awaiting the call to active duty.

On April 24th I received a commission as First Lieutenant and on July 19th was ordered to the Medical Officer's Training Camp at Fort Benjamin Harrison. At first I was surprised at being ordered there. In my profound ignorance I had supposed that my age (55) and my vast experience (?) would put me in some position where I could immediately begin such work as I had been accustomed to do. However, I found—and the farther I go the more I realize the reason—that it is very necessary for a surgeon (all physicians in the service are called surgeons) to know much of military affairs and the discipline appertaining thereto.

I will not attempt to relate the work or the routine of life in the training camp. This is more ably told in the news from the camps in the *Journal of the A.M.A.* each week, as well as in other periodicals, but will try and brief my own experience.

Frequently from Washington comes to the Training Camps the request for men who can qualify for special lines of work. A bulletin may be posted asking for men expert in T. B. work or in Eye, Ear, Nose and Throat, Regimental, etc. I noticed that frequently some one who wanted a change for any reason, though he might not be proficient in the required line, would put his name up in the list for that work, he might have even stated to his friends that he knew nothing in particular about it, but he thought the change would be easier than what he was doing, or he wanted to travel or some such excuse. Thus I saw one man qualify as an Eye and Ear expert and be sent to California, a few days later I saw where he was transferred in the same work to Long Island. This made a nice ride for him and incidentally as he was paid seven cents mileage a good sized check extra from his salary. I saw others too conscientious to express themselves as specially qualified when they knew they were not, waiting and waiting, though heartily tired of the strenuous life they were living. Medical officers were so much in demand that frequently men would be sent out with perhaps only a few days training and sadly in need of necessary knowledge of military customs and Army Regulations. I met many friends and acquaintances among the men from the different parts of our state whom I had known in civil life and I made many new acquaintances only

to be soon separated, with little probability that I will ever see them again.

At least tiring myself of seeing so many of these friends leave, though not really knowing what it meant I signed up for regular service and on Aug. 24th was assigned to Camp Taylor at Louisville for such service. On that date four special trains left Fort Benjamin Harrison with officers and medical corps men one train each, for Camps Taylor, Custer, Grant and to Chillicothe, Ohio. Three officers acting as Captain and Lieutenants were put in command of each detachment of men, which detachments consisted of from six to perhaps thirty men. There might have been really a Captain, but if not the Senior Lieutenant was acting as such; and here let me digress to speak of commissions and ranks. I have been informed that by error my commission was that of First Lieutenant but I saw so much more expected of a higher officer that many times I was glad of the error. I found considerable criticism and sarcasm directed toward those who had higher commissions at first and without the age or experience to justify such rank. I believe that if a man has no knowledge of military work, he will find his work easier in the camps and surely so later, if he begins with the lower commission, and when his promotion comes as it will if he makes good, he will have a much better idea of his duty. I feel that it is rather poor judgment which has lead some of our profession to reject their commissions unless they were higher than First Lieutenant. We may say what we will about the big practice we are giving up, etc., but the question remains, are we giving it up from patriotism? If so the slight difference in salary cuts little figure and the real honor is in going, rather than the rank we carry.

On this assignment I was third ranking officer but thereby I had much less responsibility than the other two. We had twelve men, these were assigned to our acting Captain who was also a First Lieutenant and his troubles were numerous. He had to see that they had proper rations en route and to make proper accounting therefor. To receive and keep up their service records and later when they were assigned elsewhere to see that their records were completed to date among other items being their debts to various army organizations, when last paid to, conduct, etc. He had to make out their pay roll, and to see that they had instruction in the various duties of a soldier, army regulations, first aid, setting up exercises, hikes, etc. Of course each officer had to help in this work but the Captain was responsible. Owing to the unorganization of affairs we had some trouble after our arrival for awhile in getting their mess and making other arrangements. We were there assigned to an Artillery Company, but hardly were we settled and running smoothly, when we separated from our men and each other, each officer being assigned to a Depot Brigade and having four new men assigned to him. While I was in the former organization the first bunch of conscripts began to come in and from this time on, we all had all the time when we were not working with our men, occupied with the examination of these new men. About this time I felt very proud to see my State represented by the Red Cross Organization from Flint which marched in with a fine, well drilled body of men, who received their full share of applause.

In the Depot Brigade I was assigned as Brigade Surgeon, there being five to each infirmary each surgeon had four medical corps men. One of the officers who came with our detachment from Benjamin Harrison happened to be assigned to this infirmary and the other was near by so that we were not wholly separated. Here we held regular sick call, each for his own Brigade, making the regular reports thereto in addition to much other detail work. Sick call I learned was not really a time to attend the sick except in an emergency, or for some trivial trouble, but is primarily to classify those who are able to be on duty and to get the reports back to the brigade commander where they are consolidated and sent on up till they get to the Commanding Officer of the Division, that he may know each day the exact number of men that he has available for active duty. If not able to do duty they are marked quarters, or hospital, and later treated.

By this time I began to know something of what Regimental work was but I saw no patients to speak of, all who were really ill had been sent to the base hospital. It seemed that I never would get beyond reports and what seemed to me petty work, instructions, drills, etc. I visited the Division Surgeon, Col. Allen, and after consulting with him made application for base hospital work and was recommended by him on Dec. 5th. I had met some fine men in this infirmary and was just getting acquainted and a system organized in my work, when orders came separating me from my men and assigning me others and with them to the 306 Inf. When I reported here I was informed that I was the ranking surgeon and as such would take charge of the Regimental infirmary. This was real Regimental work. There were supposed to be four surgeons and a dentist to each Regiment who work together at the infirmary, the ranking one being responsible for all the work and reports. We usually had one hundred or more men at sick call every morning, most of them men who merely thought they were sick or were trying to evade duty, or had some simple ailment. If a man was really very ill he was sent to the base hospital again, and we saw no more of him. Most all of our time was taken with the examination of the drafted men. I had found that the officer (adjutant) was in error as to my being the ranking officer in the Regiment. My commission was the oldest of the surgeons there, which in line determines the rank, but in the medical corps the date of being ordered to active duty determines, and one man already there had been ordered to duty a few days before myself so he continued in command after a slight fright that I had come to displace him, though he was very gentlemanly about it, and if this meets his eye I want to both congratulate him and thank him for his invariable courtesy to me during our short relations.

I have a conundrum "why is a soldier like a poker chip?" "Because he has no home." Hardly had I become acquainted and settled, my room made as homelike as possible and a good mess found, than I heard from my request for Base Hospital work. Orders came assigning me to the above post for surgical work. I packed my locker and bedding roll and after considerable enquiry found that Ft. McHenry was in Baltimore. I got my men changed to my senior officer, completed my records and re-

ports and arrived here Oct. 10th where I found a promotion awaiting me and what seems to be a permanent post where I shall see all the work one can wish for in a professional line.

GEORGE C. HAFFORD,
Medical Captain U. S. R.

Dr. F. C. Warnshuis,
Grand Rapids, Mich.

Dear Doctor:

I am writing to you a long way from home. I left Berrien County in August and spent eleven weeks at Fort Riley, Kansas. Then was sent down here to Camp Beauregard, Louisiana, where I have been for about six weeks. I am enjoying it very much, the weather here has been beautiful since we came here, the last two days have been colder and last night had a little frost.

The Camp has been under quarantine for about three weeks for measles, mumps, pneumonia and meningitis, there was a very high sick rate for a little while, but things are clearing up very nicely and I think soon will be about their normal condition.

Since I came here I have been assigned as an instructor in the Divisional Gas Defense School, which has to instruct the entire division in the methods of gas defensive measures. I am enjoying the work immensely as the other instructors Capt. Furman and Capt. McIntosh are both very congenial and estimable men. Which makes our work very pleasant. There are other two Michigan men down here in the Medical Service, Lieut. A. A. Hoyt of Battle Creek and a man from Alpena. I don't remember his name at present.

I presume you are familiar with the Bill which Senator Owen has introduced in the Senate regarding the status of Medical Reserve Officers, which provides that they will be eligible to promotion in the same way as the regular Medical Corps as high as Major General. We in the Reserve Corps feel this is only fair, as we have the same work to do, it is only fair that we have the same opportunity for promotion. So if you will do what you can to get the profession in Michigan to get in touch with their Congressmen and U. S. Senators to support this bill, you will be doing a great favor to the men who are in the Medical Reserve Corps. Of course we, individually are prohibited from communicating with the Representatives in Congress, so must rely upon the good service of our friends at home.

I shall be very pleased to hear from you if you can find the time, and if I can be of any assistance to you any time shall be only pleased to do whatever lies in my power.

I remain, yours very sincerely,
(Lieut.) DAVID LITTLEJOHN,
1737 White St., Alexandria, La.

Dr. F. F. Warnshuis, Secretary Michigan State
Medical Society, Grand Rapids, Michigan.

Dear Doctor:

Michigan is doing what we have expected and will do more than that. We are simply keeping up with the old heritage of physicians, that they will

be the first to leave everything for service and the last to return.

I think the Michigan State Medical, should have an Honor Roll, which should only include those who have accepted commissions or those who have been rejected for physical reasons.

Examined for Commission, Since Dec. 1st, 1917.

Dr. William Don Ryan, 648 Dix Ave., Dec. 7, 1917.
Dr. William Clarence Kooles, Holland, Mich., Dec. 7, 1917.
Dr. Heine, Mt. Clemens, Dec. 7, 1917.
Dr. Geo. Henry Campau, Providence Hospital, Dec. 7, 1917.
Dr. Morley Sigler Vaughn, Jackson, Mich., Dec. 7, 1917.
Dr. Frank T. Stephenson, Detroit, Mich., Dec. 12, 1917.
Dr. Benj. H. Pronorsky, Detroit, Mich., Dec. 12, 1917.
Dr. A. M. Schaefer, Detroit, Mich., Dec. 12, 1917.
Dr. L. E. Pangburn, Detroit, Mich., Dec. 12, 1917.
Dr. Robt. Cowan, Detroit, Mich., Dec. 12, 1917.
Dr. Albert F. Otton, Detroit, Mich., Dec. 12, 1917.
Dr. Grover C. Wood, 873 Trumbull Ave., Dec. 13, 1917.
Dr. Robert McGregor, Saginaw, Mich., Dec. 13, 1917.
Dr. Eldred Brown, 2035 Jefferson Ave., W., Dec. 13, 1917.
Dr. Langdon T. Crane, Harper Hospital, Dec. 14, 1917.
Dr. James A. McQuillan, Jackson, Mich., Dec. 14, 1917.
Dr. C. E. DeMay, Jackson, Mich., Dec. 14, 1917.
Dr. D. R. Blendedm, 355 Brush St., Detroit, Dec. 14, 1917.
Dr. Victor F. Ryan, Detroit, Mich., Dec. 14, 1917.
Dr. R. S. Goux, Detroit, Mich., Dec. 14, 1917.
Dr. Stephen G. Mollica, St. Mary's Hospital, Dec. 14, 1917.
Dr. Laurence H. Becelaire, St. Mary's Hospital, Dec. 14, 1917.
Dr. Frank B. Gerds, Pontiac, Mich., Dec. 14, 1917.
Dr. Lyle O. Shaw, 202 Marston Ave., Detroit, Mich.
Dr. J. W. Bachelor, Oxford, Mich., Dec. 14, 1917.
Dr. Chas. Lemmon, Harper Hospital, Dec. 14, 1917.
Dr. J. K. Burns, Jr., City Receiving Hospital, Dec. 14, 1917.
Dr. Harold L. Worley, Jackson, Mich., Dec. 14, 1917.
Dr. M. M. Hyman, W. Grand Blvd., Detroit, Dec. 14, 1917.
Dr. L. O. Shaw, 202 Marston Court, Detroit, Dec. 14, 1917.
Dr. John Paul Furns, 461 Gratiot Ave., Detroit, Dec. 14, 1917.
Dr. Zina D. Bennett, 522 Agnes Ave., Detroit, Dec. 14, 1917.
Dr. J. C. Young, Children's Hospital, Detroit, Dec. 14, 1917.
Dr. S. Barnett, Harper Hospital, Detroit, Dec. 14, 1917.
Dr. Paul H. Dretrich, Jefferson Ave., W. Detroit, Dec. 14, 1917.
Dr. William A. Hyland, Grand Rapids, Mich., Dec. 14, 1917.
Dr. Clarence A. Christenson, David Whitney Bldg., Dec. 14.
Dr. Richard F. Boonstra, 510 Jefferson Ave., E., Dec. 15, 1917.
Dr. Carl R. Zollicker, Harper Hospital, Dec. 15, 1917.
Dr. S. S. Skazychi, St. Mary's Hospital, Dec. 15, 1917.
Dr. Henry R. Boyes, Harper Hospital, Detroit, Dec. 15, 1917.
Dr. Thomas E. Hackett, Dowagiac, Mich., Dec. 15, 1917.
Dr. James J. O'Meara, Jackson, Mich., Dec. 15, 1917.
Dr. Charles R. Dengler, Jackson, Mich., Dec. 15, 1917.
Dr. James Cannon, Harper Hospital, Dec. 15, 1917.
Dr. Arthur M. Watson, Orion, Mich., Dec. 15, 1917.
Dr. L. H. Stout, Detroit, Mich., Dec. 15, 1917.
Dr. Clyde H. Chase, Harper Hospital, Dec. 15, 1917.
Forty-eight in all.

Yours very truly,
C. D. BROOKS.

Musterole Poisoning.—D. I. Macht reports the case of a scarlatiniform eruption, evidently caused by an application of Musterole, a proprietary composed essentially of lard or some similar material, oil of mustard, menthol and camphor. Macht reports on the effects of mustard oil and warns against its careless use. (*Jour. A.M.A.*, Sept. 15, 1917, p. 901.)

"Nikalgin."—A report issue of Collier's contains an article of "Nikalgin." Far-reaching claims for its anesthetic and antiseptic virtues have been made. While no very definite information seems to be forthcoming regarding the preparation, it has been said to be "composed of quinine, hydrochloric acid and urea." This would indicate that "Nikalgin" may be nothing more wonderful than the well known local anesthetic, quinine and urea hydrochloride, or a modification of it (*Jour. A.M.A.*, Sept. 22, 1917, p. 1024).

Deaths

Dr. Andrew T. Sherman of Detroit died Dec. 9th at his home on Trumbull Ave. He was a graduate of the Detroit College of Medicine and had practiced in Detroit for twenty-five years.

Dr. Albert H. Steinbrecher, 15 Arden Park, Detroit, died November 25th. He was well known in Detroit, having practiced there for over twenty-six years.

Dr. Julius Wilhelm, one of northern Michigan's promising physicians, died at his home in Traverse City after a long illness.

Dr. F. C. Terrell of Big Rapids, one of the oldest practicing physicians in Mecosta County, died on December 4th from cancer.

Dr. Chas. W. Synder, of Clyde died November 15th after a year's illness of Bright's disease.

Notice of the death of the following doctors not members of the State Society has been received during the month: Dr. I. B. Malcomb of Lowell; Dr. Wm. R. Yuill of Yale.

State News Notes

Dr. J. E. Ferguson of Grand Rapids, was arraigned in Justice Turner's court, Muskegon, on a charge of unprofessional and dishonest conduct. He pleaded not guilty.

Dr. Ferguson, who advertises himself as the United Doctors of America, and has appeared in Muskegon and other cities nearby, was arrested on a complaint made by Dr. George LeFevre. It is said the doctor is unprofessional in his advertising. It is said that the doctor, or the United Doctors of America, say they will cure patients of all diseases, where other doctors have failed.

The Hygeia Hospital is now located in its new and larger quarters at 4733 Vincennes Ave., Chicago, Ill.

Physicians who wish to refer cases of drug addiction and alcoholism to Dr. Wm. K. McLaughlin, Medical Superintendent for treatment, should make special note of the new location of the Hygeia Hospital, since the new quarters are located in a section of Chicago very far from the old address.

Dr. Theo. F. Heavenrich, of Port Huron, who has been seriously ill, suffering from an infection of the face and jaw, contracted as a result of operating on a septic arm, has entirely recovered and has again resumed practice.

The following Committee has been appointed by General Pershing, upon the recommendation of Surgeon General Bradley:

Major Angus McLean,
Major George E. McKean,
Major Harry N. Torrey.

First Lieutenant, Bror H. Larsson, will accompany the expedition as secretary. Captain James W. Inches will represent the American Red Cross in the same mission.

Its object is to study hospital conditions in Italy, surgical treatment and sanitary medicine.

Permission for this investigation was first obtained through the Italian military authorities and was granted for fourteen days.

Majors McLean and McKean were presented to Marechal Joffre and his staff, who heartily approved of the projected trip.

This is the first American Expedition to visit and its appointment may be considered as a compliment to Base Hospital No. 17, as well as to the city of Detroit.

The Committee will report back to Chief Surgeon, General Bradley and to the *Journal of A.M.A.* and the Military Surgeon.

Hospital Unit Q, Grand Rapids, Major R. R. Smith, Director, were ordered to Ft. McPherson, Ga., on Dec. 15th.

Dr. James W. Inches of Detroit returned home December 3rd after a six months tour of the French, Italian and British fronts in behalf of the American Red Cross.

Dr. B. M. McMullen of Cadillac has been a patient of the Mayo Clinic. He received treatment for a benign lesion of the lower jaw.

Dr. Duncan Campbell of Avoca has moved to West Branch, Michigan.

Dr. S. M. Cornell and Mrs. Ida McCrane of Bronson, Mich., announce their marriage on December 1.

Dr. G. J. Warnshuis of Herried, S. Dakota, has become associated with his brother in Grand Rapids.

Dr. Spencer D. Guy has located in Benton Harbor.

Dr. G. L. Bliss has removed from Three Rivers to Kalamazoo.

COUNTY SOCIETY NEWS

It is the Editor's desire to have this department of the Journal contain the report of every meeting that is held by a Local Society. County Secretaries are urged to send in these reports promptly

EATON COUNTY

The annual meeting of the Eaton County Medical Society was held at the Phoenix Hotel, Charlotte, Mich., Thursday, Nov. 22, 1917. Dinner was served to sixteen members, following this the meeting was called to order by President Burleson.

Dr. Hugh Myer of Potterville was made a member.

Dr. Blanchard, chairman of County Defense Medical Committee reported that Dr. Wilson Canfield had been named vice chairman and Dr. W. E. Newark assistant Secretary.

Dr. A. G. Sheets, Chairman of Fee Committee offered the following resolution and moved its adoption.

Resolved that the schedule of fees as adopted by the Eaton County Medical Society shall affect all members of this Society, and shall govern and guide all members in submitting bills for professional services. Any violation of this resolution will constitute a sufficient cause or reason for preferring charges against a member and when such violation has been proven to the satisfaction of a majority of the members he shall be deemed guilty of unprofessional conduct and shall be suspended or expelled from the Society.

NOTICE.

For some time past the members of the Eaton County Medical Society have felt the necessity of revising their schedule of fees.

The sharp advance in the cost of medical supplies and surgical dressings together with our inability to gather any authentic data as to when we might expect relief, have influenced us to do this at this time.

The new schedule is but a slight advance over the one that has prevailed in all parts of the county during the past five or six years, and is as follows:

Schedule of fees adopted by Eaton County Medical Society to take effect December 15, 1917.

Office prescriptions, \$1.00.

Examinations—Blood, \$5.00; urine, not less than \$1.00; stomach contents, \$5.00; sputum, \$3.00; Wassermann, \$10; physical examination, \$1.50 up.

Consultation—\$5.00, plus mileage.

City calls—\$1.50 day, \$2.50 night. Calls between 7 a. m. and 7 p. m. shall be considered as day calls. and calls between the hours of 7 o'clock p. m. and 7 o'clock a. m. shall constitute night calls.

Country Calls—\$1.50, plus mileage 50c per mile.

Administration of anesthetic—Minor operations, \$5.00 plus mileage; major operation, \$10.00 plus mileage.

Obstetrics—\$15 up plus mileage, cash.

Obstetrics—Instruments, \$25 plus mileage, cash.

Fractures—Femur, \$50; tibia and fibula, \$25 up; humerus, \$25 up; colles, \$25; ulna and radius, \$25; wrist or ankle, \$15 to \$25, clavicle, \$15 to \$25; one or more ribs, \$5.00 up; skull \$25 up.

Dislocation—Hip, \$25 to \$50; shoulder, \$15 to \$25; elbow, \$25 to \$35; knee, \$25.

Removal of foreign bodies from eye, \$2.00.

Advice by telephone, day, 50c; night, \$1.00.

Signed by

A. G. SHEETS, Chairman.

P. H. QUICK, Secretary.

ELECTION OF OFFICERS.

President—Dr. F. R. Blanchard, Eaton Rapids.

Vice President—Dr. A. G. Sheets, Eaton Rapids.

Secretary-Treasurer—Dr. P. H. Quick, Olivet.

Delegate—Dr. F. J. Knight, Charlotte.

Alt. Delegate—J. D. McEachron, Vermontville.

Medico-Legal—A. W. Adams, Bellevue.

BOARD OF DIRECTORS.

Dr. A. R. Stealy elected to succeed self.

Dr. Chas. Huber to fill Dr. H. Rockwell's vacancy.

1. Chas. Huber Term expires 1918

2. C. A. Stimson Term expires 1919

3. W. E. Newark Term expires 1920

4. C. C. Sackett Term expires 1921

5. A. R. Stealy Term expires 1922

All committees to be appointed by President Blanchard at later date. It was voted and carried that the President appoint two members along with the Secretary, to revise and bring by-laws up to date. Drs. Blanchard and Sheets were appointed.

G. M. BYINGTON, Secretary.

INGHAM COUNTY

The Ingham County Medical Society held its annual meeting December 21, 1916.

PROGRAM.

Bone Pathology—January 25, 1917, Dr. Richard R. Smith, Grand Rapids.

Acidosis—March 29, 1917, Dr. N. B. Foster, Ann Arbor.

Medical Preparedness—May 3, 1917, Dr. H. A. Haze, Park Lake—September 6, 1917. All

Business Meeting—September 27, 1917, Chamber of Commerce.

Typhoid Fever—October 11, 1917, Dr. A. A. Spoor. Business Meeting—November 20, 1917, City Hall.

Standing Committees of the Ingham County Medical Society.

Advisory Council—Drs. A. D. Hagadorn, Harry A. Haze, L. Anna Ballard.

Executive Committee—Drs. G. F. Bauch, R. E. Miller, S. H. Culver.

Program Committee—Drs. C. V. Russel, W. G. Wright, R. H. Crissey.

Entertainment Committee—Drs. B. M. Davey, B. D. Niles, E. F. Carr, Fred J. Drolette.

Public Health—Drs. J. F. Rulison, O. H. Freeland, Herbert Landon.

Legislative Committee—Drs. F. M. Huntley, A. M. Campbell, O. A. Tooker, Fred Seger.

PHYSICIANS IN THE SERVICE.

Dr. H. S. Bartholomew.

Dr. Clara M. Davis.

Dr. M. L. Holm.

Dr. Herbert Landon.

Dr. R. R. McCrumb.

Dr. Milton Shaw.

The annual meeting of the Ingham County Medical Society was held December 6th, 1917, in Lansing in the Hotel Downey.

A report of a detailed study by a local legal firm of policies for medical protection of the Medical Protective Company of Fort Wayne, Indiana, and of the Aetna Company under its group plan was given the Society but no action was taken, the matter being left in the hands of a committee in charge of this investigation. A resolution designating the Society's approval and willingness to co-operate with the State Board of Health and the druggists on the War Measure which makes it compulsory for physicians to report all cases of venereal disease was passed and copies of it are being distributed.

The following officers were elected for the ensuing year:

President—Claude V. Russell, Lansing.

Vice President—John G. Rulison, Lansing.

Secretary-Treasurer—Earl I. Carr, Lansing.

Delegate—Freeman A. Jones, Lansing.

Alternate—O. H. Freeland, Mason.

The retiring president's interesting address was entitled "One day in my general practice."

The Secretary was instructed to write for the Society messages of good cheer to all absent members in military service.

Retiring President and Mrs. Freeman A. Jones gave the Society and their wives a dinner in the grill at the close of the business meeting. After the dinner there was the following patriotic program:

"The Physician in this War," address, Dr. F. A. Jones.

"Red Cross Work," address, Mrs. C. L. Barber.

"Star Spangled Banner," by orchestra while a silk flag was floated through the room.

Eulogy to our flag," oration, Mrs. Karl Brucker, "America."

E. I. CARR, Secretary.

KALAMAZOO ACADEMY.

Secretary's Annual Report for 1917.

To the Officers and Members of the Kalamazoo Academy of Medicine:

Your Secretary is pleased to submit his second annual report.

During the year, the Kalamazoo Academy convened regularly twice each month. All meetings

were held in the Academy rooms except for our two summer meetings held in Allegan and South Haven, at which places we were royally entertained by the local profession. It is understood that the Academy has an invitation to hold one of our summer meetings at the resort home on the lake at South Haven of one of Chicago's prominent physicians.

Our President presided at all sessions except on one occasion when he was confined to the hospital.

Our Program committee furnished the Academy with excellent programs and at each meeting we were host to some distinguished out-of-town physician.

Noon-day luncheons in the honor of our guests were held at the Park-American Hotel on each Academy Day. These luncheons were poorly attended, on several occasions only three or four were present. The fact is to be regretted because of the poor impression it gives our guest. During the coming year, may each Academy member form the habit of being present at these luncheons.

Twenty-three of our members have given their services to their country and were commissioned as follows:

Captains, 5; Lieutenants, 15; special work, 2, and application pending, 1.

Two of the twenty-three have arrived safely in France, twelve are receiving intensive military training at the various camps and forts and five are awaiting orders.

The Bulletin has been published regularly, announcing the programs, giving abstracts and reviews.

The attendance during the first half of the year was very good. During the last six months, the attendance has fallen off considerably. This is thought to be in large part due to the fact that our members remaining have had more work to do because of those in military training.

The Academy of Medicine has in the past experienced no difficulty in obtaining the best medical talent in the land. If we are to continue being so fortunate, we must have a full attendance at our Society meetings.

Respectfully submitted,

Leslie De Witt.

Treasurer's Annual Report for 1917.

(Dr. LeLand)

Receipts

| | |
|--|----------|
| Balance Dec. 2, 1916 | \$ 61.99 |
| Received from active members | 1,081.11 |
| Received from associate members | 13.50 |
| Drawn from special assessment fund | 32.00 |
| Received from M. Fisher | 3.69 |
| Refund by American Medical Assn. | 7.00 |
| Received on special assessment | 8.00 |
| Received from Nurses' Association | 25.00 |

\$1,232.29

Disbursements

| | | |
|--------------------------------------|-----------|--------|
| State Society | \$ 458.50 | |
| Guests | 56.16 | |
| Postage and stationery..... | 59.80 | |
| Printing and Bulletins | 33.35 | |
| Library | 73.45 | |
| Telephone and telegrams | 73.05 | |
| Janitor and cleaning | 14.93 | |
| Stenographer and clerk | 45.69 | |
| Lighting | 25.96 | |
| Flowers and music | 5.50 | |
| Kalamazoo Loose Leaf Binder Co. | 7.45 | |
| J. R. Jones for sheets | 1.50 | 855.34 |

Balance in checking fund to Dr. Barrett \$ 376.95

(Dr. Barrett, Acting Treas.)

Receipts.

| | | |
|---|-----------|-----------|
| Balance from Dr. LeLand | \$ 376.95 | |
| Received from war relief assessment | 170.00 | |
| Refund, Typewriter Co. | 4.50 | |
| | | \$ 551.45 |

Disbursements

| | | |
|--|-----------|--|
| State Society war fund | \$ 100.00 | |
| Guests | 9.00 | |
| Postage and stationery | 21.35 | |
| Printing and Bulletins | 34.15 | |
| Library | 4.00 | |
| Telephone and telegraph | 32.38 | |
| Cleaning rooms | 12.15 | |
| Stenographer and clerk | 18.15 | |
| Lighting | 10.00 | |
| Flowers | 7.10 | |
| Insurance | 10.20 | |
| Dray | .25 | |
| Transferred to savings acct. spec. assessment fund | 78.00 | |

336.73

Balance forward \$ 214.72

Total Report, 1917.

Receipts

| | | |
|--|----------|--|
| Balance Dec. 2, 1916 | \$ 61.99 | |
| Received from active members | 1,081.11 | |
| Received from associate members | 13.50 | |
| From special assessment for library | 32.00 | |
| Received from M. Fisher | 3.69 | |
| Refund by A. M. A. | 7.00 | |
| Received from first assessment fund | 3.00 | |
| Received from second assessment fund, war relief work .. | 175.00 | |
| Received from Nurses' Association | 25.00 | |
| Refund, Detroit Typewriter Co. | 4.50 | |

\$1,406.79

Disbursements

| | | |
|---|-----------|------------|
| State Society dues | \$ 458.50 | |
| State Society war fund | 100.00 | |
| Guests | 65.16 | |
| Postage and stationery | 81.15 | |
| Library | 77.45 | |
| Telephone and telegraph | 105.43 | |
| Janitor and cleaning | 27.08 | |
| Stenographer and clerk | 63.84 | |
| Lighting | 35.96 | |
| Flowers and music | 12.60 | |
| Kalamazoo Loose Leaf Binder Co. | 7.45 | |
| J. R. Jones Sons & Co., sheets | 1.50 | |
| Insurance | 10.20 | |
| Dray | .25 | |
| Printing and Bulletins | 67.50 | |
| Transferred from spec. assessment fund to savings account | 78.99 | \$1,192.07 |

Balance forward \$ 214.72

Special Assessments Fund

Receipts

| | | |
|---|-----------|--|
| Balance forward, 1916 | \$ 212.61 | |
| One member paid on first spec. assessment | 3.00 | |
| 35 members paid on 2nd spec. assessment | 175.00 | |
| (War Relief Fund) | | |
| Interest for 1917 | 5.93 | |

396.54

Disbursements

| | | |
|----------------------------------|-----------|--------|
| To State Society war relief fund | \$ 100.00 | |
| Books for library | 32.00 | 132.00 |
| Balance | \$ 264.54 | |
| Total of cash funds of Academy | \$ 479.26 | |

Estimated Budget for 1918

| | | |
|--------------------------------------|----------|--|
| State Society dues, 109 | \$381.50 | |
| State Journal for Military Men | 34.50 | |
| Guests | 100.00 | |
| Stenographer | 50.00 | |
| Postage and stationery | 100.00 | |
| Flowers and music | 25.00 | |
| Lighting | 10.00 | |
| Janitor service | 30.00 | |
| Library | 50.00 | |
| Telephone and telegraph | 40.00 | |
| Printing | 125.00 | |

\$946.00

Estimated Receipts

| | | |
|----------------------------|----------|--|
| 54 members at \$8.50 | \$459.00 | |
| 55 members at \$6.00 | 330.00 | |
| 7 associates at 2.50 | 17.50 | |
| | \$806.50 | |

A. W. Crane,

Chairman, Budget Committee.

Annual Report of the Program Committee

The Kalamazoo Academy of Medicine held twenty-two regular meetings during the year of 1917, twenty being held in our Academy rooms and one each in South Haven and Allegan, where

the members greatly enjoyed the hospitality of the resident physicians. Papers were presented by ten of our own members during the year and we were honored by having twenty-two distinguished guests and essayists from the following cities: Chicago, Detroit, Ann Arbor, Grand Rapids and Camp Custer.

Two clinics were held during the year and numerous case reports given by local members. The thirty-two papers presented covered a wide range of subjects, embracing nearly every department of medicine and surgery.

Your committee feels that the general character of the papers presented during the year has been exceptionally high and wish to express our appreciation for the hearty response that our efforts have elicited.

Respectfully Submitted,
J. T. Upjohn, Chairman.

Annual Report of the Clinical Committee.

The Clinical Program committee has furnished material for one clinic during the year. This was conducted by Doctor Andrew P. Biddle, president of the state society, on Feb. 13, 1917. Cases of epithelioma of the face, secondary syphilis, acne rosacea and other interesting skin lesions were shown.

John B. Jackson, Chairman.

Annual Report of the Library Committee.

The following journals were subscribed for during the year and for one or more following years will be on file:

Surgery, Gynecology and Obstetrics.
Annals of Surgery.
Journal of Laboratory and Clinical Medicine.
Archives of Internal Medicine.
Journal of Endocrinology.
American Journal of Medical Sciences.
American Journal of Diseases of Children.

These journals are taken that they may meet the wants of the differently inclined members of the Academy. Various state journals and some other publications are sent to the Academy and contain valuable and original articles.

Among these are the Public Health Bulletin of the U. S. A., New York State Journal of Medicine, Indianapolis Medical Journal, St. Paul Medical Journal, Cleveland Medical Journal.

The A. M. A. Journals for five years are on file in the room, back of the lavatory. Journals for 1917 are on file in the book cases, which also contain the following journals for several years:

Surgery, Gynecology and Obstetrics.
Annals of Surgery.
Public Health Reports and Monographs.

Old medical books, dating back to 1739 are for observation in the right-hand bookcase.

The writings of Weir Mitchell, bearing in a unique way upon medical problems from his point of view, were placed on the shelves this year and paid for from the special assessment fund in the bank of \$212.00. All journals received are reviewed and notice of the leading articles is published each month in the bulletin. Periodicals removed from the library for a limited time

are to be recorded in a book for that purpose lying on the journal rack.

Surgery, Gynecology and Obstetrics for 1913 are asked for the files, and also the Annals of Surgery for 1911-12-13 and 14. It seems advisable to continue the standard journals subscribed in 1911, each being definitely different and valuable, and needed for reference in cases and papers.

Focal Infections—Billings, has been placed in the library and among the books received is the Proceedings of the Institute of Medicine of Chicago, which contains papers presented by its notable members. There is an apparent omission in the library of the personal history in Medicine. Several most interesting books have recently been published and are of wide sale. Many societies have a historical club in their organization.

Blanch N. Epler, Librarian.

Annual Report of Social Hygiene Committee

Your committee wishes to express its realization of the unusual significance of social hygiene work at this time. It has endeavored to approach and meet the problem through educational propaganda. Shortly following its appointment the chairman endeavored unsuccessfully to secure the introduction of systematic instruction along these lines in all of our city schools. Failing in this effort an attempt was made to secure similar results by working through our five social centers. Through the hearty cooperation of the chairman of this work, Mrs. A. J. Mills, plans have been completed for a series of three talks to mothers and daughters, and of three to fathers and sons in each social center, a total of thirty addresses to be given during January, February and March. These plans will be promptly placed in the hands of the chairman of the in-coming committee.

Your committee has proffered its services to the War Aid Association, to the Secretary of the Federal War Recreation Work and to the Council of National Defense. Each individual of the committee has contributed to its work, both in time and effort, results have been accomplished in the higher educational institutions of our city and numerous lectures before various groups in and out of the community have been given. Especially should the splendid and extensive work of Dr. Alice Barker-Ellsworth in conjunction with the Y. W. C. A. and First Aid classes be recorded. She has given a series of six lectures, with an average attendance of one hundred and eight; a series of three lectures, with an average attendance of twenty-five and a series of twelve lectures with an average attendance of forty-two.

While your committee feels that "the single address" is better than none it wishes to record its conviction that best results can be reached only through a series of about three talks, laying a foundation and securing a friendly relation with the group and thus avoiding the psychological embarrassment and unnaturalness of the more precipitate approach to a problem at one both intricate and exceedingly difficult of presentation.

Under the date November 12, 1917, the Secretary of the State Board of Health issued a circular letter to the physicians of the State of Michigan relative to the reporting of venereal diseases. Your committee wishes to express its commenda-

tion of this movement and would recommend the action of the State Board of Health and express its hearty co-operation in accomplishing the desired results.

Respectfully submitted,
Dr. L. H. Harvey, Chairman.

Annual Report of the Social Functions Committee.

As chairman of your Social Functions committee, I beg to submit the following report:

We have had luncheon at the Park American preceding each meeting, at which the out-of-town essayist has been entertained.

These luncheons have been fairly well attended.

Respectfully submitted,
E. P. Wilbur, Chairman.

LAPEER COUNTY.

At a meeting of the Lapeer County Medical Society, held at Imlay City, November 13, 1917, Dr. J. P. Suiter, of Hadley, one of Lapeer county's oldest physicians, was elected an honorary member.

Dr. W. H. Marshall of Flint, was present and gave a very interesting talk on the General Organization of Medical Service from the Firing Line to the Convalescent Hospital.

He spoke at length on the diseases prevalent with the armies in France—cerebral spinal fever, trench feet, gas poisoning, trench fever, trench nephritis, infective jaundice, amebic dysentery, and shell shock. Dr. Marshall's subject was a live one in the hearts of all American physicians, and he handled his subject in such a manner that he gained the admiration of his hearers, speaking as he did from personal experience, after nine months' service with the British armies in France.

Dr. H. R. Varney of Detroit, then followed with a talk on syphilis, making an old subject a new and live one, thereby bringing out many things along the line of diagnosis and treatment.

Dr. Varney said with an early diagnosis, he believed the disease easily curable before the infection had gained headway along the lymph system, and unlike the old teaching, to wait for the secondary symptoms to appear, advised the proper tests being made at once, followed by proper treatment if tests proved positive in reaction. The importance of recognizing the cancered finger nails as a point in diagnosis was impressed upon us.

The profession was warned to be ready to cope with the disease when the soldiers returned from France, stating that it had been the history of all wars to spread venereal diseases, and in this particular war, the various types from the various nations involved will be cut loose in America. He brought out the point that an active syphilitic was not a good soldier, had brain storms, and was a coward.

Dr. Varney advised physicians to shoulder the troubles of the syphilitic and if possible persuade them to allow their physician to direct their career. Thereby many of them would be prevented from becoming charges in our public institutions.

The meeting adjourned with a vote of thanks being tendered to Dr. Marshall and Dr. Varney.

C. M. BRAIDWOOD, Secretary.

ST. CLAIR COUNTY.

The regular meeting of the St. Clair County Medical Society was held at the Harrington Hotel, Thursday evening, November 8th.

Dr. Geo. Kesl was elected a member to the Society.

Dr. J. B. Bruce of Saginaw gave a very interesting address on the Base Hospital Work of England and France.

Thirty-six members were present at the meeting.

The regular meeting of the St. Clair County Medical Society was held at the Harrington Hotel, Thursday evening, November 22nd.

Dr. H. Wellington Yates of Detroit was present and gave a very interesting talk on "Cancer in Women," which was appreciated by all present. Discussion opened by Dr. McKenzie, followed by other members of the Society.

W. W. RYERSON, M.D., Secretary.

The regular meeting of the St. Clair County Medical Society was held at the Harrington Hotel, Thursday evening, Dec. 13th, 1917.

Dr. Smith of St. Clair read a very interesting paper on "The Future Practice of Medicine," which was enjoyed by all present.

Dr. Chester gave a review of the work covered during the year which is hereto attached.

A motion was made and seconded that the papers read by Drs. Smith and Chester be forwarded to the *State Journal* for publication. Carried.

ELECTION OF OFFICERS.

President—R. K. Wheeler, Port Huron.
Vice President—S. K. Smith, Port Huron.
Secretary-Treasurer—W. R. Ryerson, Port Huron.
Delegate—Dr. Chester, Emmett.
Alternate—Dr. Heavenrich, Port Huron.

A BRIEF REVIEW OF THE YEAR'S WORK DONE BY THE ST. CLAIR COUNTY MEDICAL SOCIETY.

Jan. 11.—Dr. A. J. McKenzieFractures
Dr. C. B. StockwellSkin Grafts

At this, the first meeting, Dr. McKenzie set a high standard by showing good preparation and having committed his paper to memory. Through the whole series of meetings the members lived up to this standard.

Dr. Stockwell's address created great interest.

Jan. 25.—Dr. James McCabe,
Occipito Posterior Presentation.

Dr. T. A. McGrath, Allen Treatment in Diabetes

Dr. McCabe's lecture was appreciated and well discussed, while that of Dr. McGrath was voted the last word on the subject.

Feb. 8.—Dr. M. E. Vroman,
Points of Interest to the General Man.

Dr. Theo. HeavenrichAs Others See Us.

Points of General Interest were of interest and the second subject, being the views of those outside of the profession, was also very interesting.

Feb. 22.—Dr. Chas. F. Kuhn..Intestinal Obstruction.
This was a splendid surgical paper.

March 8.—Dr. J. J. Moffit,
Surgical Anatomy of the Tonsil.
Dr. D. K. SmithAcidosis

Dr. Smith's address was appreciated by those present, and he has been requested to give another paper on the same subject.

The first was a very instructive lantern slide demonstration.

March 29.—Dr. R. R. SmithGoiter
Dr. Wm. M. DonaldAlcohol

The first was a splendid talk with lantern slide demonstration. In the second number Dr. Donald, who is an orator, sustained his reputation.

April 12.—Dr. W. J. Wilson,
Diagnosis, Prognosis and Treatment of
Common Heart Diseases.

This was of interest to all.

April 26.—Dr. A. P. Biddle,
The Duty of the Medical Profession in the
Present War.

Dr. Biddle, who is the President of the State Medical Society, is a military man. His address was inspiring.

May 8.—Dr. A. J. Attridge,
Pelvic Infection—Lantern Slide Demonstration
Dr. J. L. ChesterDiseases of the Esophagus
Dr. Attridge's paper was discussed until the "wee sma hours."

July 12.—Dr. J. L. Chester,
The Use and Abuse of Tuberculin.

Sept. 27.—Dr. Wm. De Kleine,
The Early Diagnosis of Tuberculosis
Dr. J. L. Chester,

Tuberculin as a Therapeutic Agent
Dr. De Kleine's splendid lecture contained the very latest information on the subject.

Nov. 8.—Dr. James Bruce,
Surgery and the Diseases met with from the
Trenches to the Base Hospital.

Dr. Bruce had seven months actual experience in the war zone and was listened to with much interest. He did not talk over the heads of the doctors.

Nov. 22.—Dr. H. Wellington Yates,
Cancer in Women

This paper should be published.

Dec. 13.—Dr. W. H. Smith,
The Future of the Practice of Medicine
This paper will be published in the *Journal*.

In all there were twenty-one papers given. Dinner was served at every meeting. All feel better after a good meal. When the doctor's get together often, put their feet under the same table, swap experiences and smoke, a good feeling toward each other must prevail. This is one reason why there is such a universal brotherhood among the medical profession of St. Clair County, and to us can there be anything so sublime?

The destiny of a medical society "lies in the principles which govern its policy and bears rule in the hearts of its members." A society is just what its members make it. The co-operation of most of the members will make the society a great success for all. The splendid success of the St. Clair County Medical Society during the past year is surely

not due to any work the President has done. It is due to the splendid cooperation of most of the members and the help given by the vice-president, Dr. D. J. McCall, who took the chair at three meetings and, in the absence of the Secretary, made all the arrangements for one.

The President wishes to acknowledge the untiring work of the Secretary, Dr. W. W. Ryerson. More work could have been done during the past year and the society have been of greater value to all. However, I am sure the society will meet with greater success in the future through the full and ungrudging cooperation of all the members.

In behalf of the society I wish to extend our appreciative thanks to all the members who have read papers. Their names are given above and the society is surely indebted to them.

There was an average of twenty-four at each meeting. No one questions the fact that great good is gotten from these meetings. It is really a post graduate course for all who attend, stimulating each to do better work.

Whether the papers were given by home or outside doctors made no difference with the attendance. All papers were well discussed, especially papers given on surgical subjects. Papers given by some doctors were usually discussed "to a frazzle."

RECOMMENDATIONS.

The society should have a library. A nucleus could be started at very small expense and the library, in time, would be a great help to the profession of St. Clair County.

There ought to be committees to review the current medical literature, such as the *Medical Clinics of North America*, *Surgical Clinics of Chicago*, *British Medical Journal*, etc., etc., and give clear, yet succinct, reports once a month.

The meetings for the year should be arranged for as early as possible and the program announced at least two weeks before each meeting in order that all may have an opportunity to review the subjects. It stimulates interest and brings out better discussions. If a doctor has looked up a subject and is prepared to discuss it, he will make a sacrifice to attend, but if he knows little or nothing of the topic to be presented he'll have very little interest and make no special effort to go. When possible a synopsis of paper to be read should be given to the members a week or ten days before they are presented.

Who should attend the meetings of the County Medical Society? All the doctors in the county. Those who do not attend are not fair to other physicians, their patients or themselves. If a doctor is a student and desires to progress, the society meetings furnish the stimulus and a splendid opportunity. On the other hand if he is at the head of his profession and knows it all, he violates his Hippocratic oath by not attending the meetings to impart his knowledge of medicine, surgery and all the specialties to his brother practitioners.

The meetings should be held bi-weekly. There is more interest taken and the attendance is better if the meetings are held often—at least twice a month.

J. L. CHESTER.

NEUTRAL SODIUM SOAP.
THE PREPARATION AND STANDARDIZA-
TION OF OVARIAN AND PLACENTAL
EXTRACTS.—SURGERY, GYNECOL-
OGY AND OBSTETRICS, VOL.
XXX, 1917, 324.

Morley gives due emphasis in his article to the need for more uniform methods in the preparation of ovarian and placental extracts. Tangible laboratory and clinical data are still moreover lacking in extent. A review of the more important articles on the above subject reveals the circumstance that it is only within the last ten years that an attempt has been made to isolate the active principle of the ovary and placenta, especially the former. Iscovesco (1908) obtained "lipoids" from the red blood corpuscles, hypophysis, kidney, adrenals, ovaries, the testicles and the corpora lutea, and discovered they exerted a certain action on the female genitalia. The "homo-stimulating" lipoids exercising an action on different organs—this division he discovered later being purely arbitrary. Hermann (1915) believes he has succeeded in separating the "active substance" of the corpus luteum and of the placenta as a specific chemical substance, having identical physiological properties. Hermann possibly obtained his so-called active substance in the purer state. After engaging in special research work along this line during the last two years, Morley expresses the opinion that up to the present time no ideal method of preparation has been formulated, and until that is accomplished, standardization of the product will not be attempted. Considering the newness of the subject the article concludes with quite an extensive bibliography.

"Patent Medicines" here and in Canada.—The federal law governing the interstate sale of "patent medicines" prohibits false and misleading statements in regard to composition and origin and false and fraudulent therapeutic claims. The Canadian law offers no protection against false, misleading or fraudulent statements that may be made for products of this class. As a result, many claims made for "patent medicines" when sold in Canada are not made when the same preparations are sold in the United States. An examination of Dodd's Kidney Pills, Doan's Kidney Pills, Williams' Pink Pills for Pale People, Paine's Celery Compound, Hall's Catarrh Medicine, Hood's Sarsaparilla, Dr. Chase's Nerve Pills, and Gino Pills as sold here and in Canada leads to the conclusion that the "patent medicines" industry as a whole is founded on falsehood, and that misleading and false claims will be made for such preparations, at least in the majority of cases, just so long as manufacturers are subject to no restraint except their own consciences (*Jour. A. M. A.*, Nov. 10, 1917, p. 1636).

Shot-gun Vaccines for Colds.—There is no reliable evidence for the value of mixed vaccines in the prevention or treatment of common "colds" and

similar affections. The Council on Pharmacy and Chemistry accepted for New and Nonofficial Remedies mixed vaccines only on condition that their usefulness has been established by acceptable clinical evidence. So far it has not admitted any of the "influenza" or "catarrhal" mixed vaccines (*Jour. A. M. A.*, Nov. 10, 1917, p. 1642).

Iodeol and Iodagol.—Iodeol and Iodagol (formerly called Iodargol) are the products of E. Viel and Company, Rennes, France. They have been widely and extravagantly advertised in the United States as preparations containing colloidal, elementary iodine, and with the claim, that, because of the colloidal state of the iodine, they possessed the virtues but not the drawbacks of free iodine. As the result of chemical examination, pharmacologic, bacteriologic and clinical investigation and a study of the submitted evidence, the Council on Pharmacy and Chemistry declared the products inadmissible to New and Nonofficial Remedies because they did not contain the amounts of iodine claimed; because the iodine was not in the elementary or free condition but behaved like fatty iodine compounds, and because the therapeutic claims were exaggerated and unwarranted. The American agents, David B. Levy, Inc., announce that the sale of Iodeol and Iodagol has been discontinued (*Jour. A. M. A.*, Nov. 17, 1917, p. 1725).

The Carrel-Dakin Wound Treatment.—Arthur Dean Bevan holds that the value of the Carrel-Dakin method of treating infected wounds has not been established. He has been forced to the conclusion that Carrel's work does not meet the requirements of scientific research. Bevan believes that the choice of antiseptics in the treatment of infected wounds is of little moment, and that the use of the Carrel-Dakin fluid, like Koch's lymph, Bier's hyperemia and the vaccine therapy of acute infections, will have a short period of popularity (*Jour. A. M. A.*, Nov. 17, 1917, p. 1727).

Sphagnum Moss, A Surgical Dressing.—In England, sphagnum moss, or peat moss, is being used as a substitute for absorbent cotton. The dried moss is said to absorb twenty-two times its own weight of water, while absorbent cotton will not absorb more than six times its weight. For surgical use the dried moss is packed loosely in muslin bags which are then sterilized by heat or chemicals such as mercuric chloride (*Jour. A. M. A.*, Nov. 24, 1917, p. 1798).

Adulterated Imported Drugs.—The U. S. Department of Agriculture announces action against imports of adulterated drugs. Belladonna root was adulterated with yellow dock; cantharides was adulterated with so-called Chinese blister flies, and cinchona bark offered for entry was deficient in

alkaloid. Other drugs were illegally labeled (*Jour. A. M. A.*, Nov. 24, 1917, p. 1792)

Bell-ans (Pa-pay-ans, Bell).—Bell-ans, formerly advertised as Pa-pay-ans (Bell) in medical journals, is now advertised in newspapers and in medical journals. Among the extravagant claims made for this preparation is the claim that there is no derangement of the digestive organs on which the proper dose of Bell-ans will not act quickly and pleasantly. Instead, proper treatment must aim to determine the cause and attempt its removal, the choice of drugs depending on the conditions that give rise to indigestion. The treatment of indigestion by a single prescription or combination is wholly irrational. While Bell-ans, under its old and new name, has been alleged to contain papain or to be some preparation of the digestive juice of the fruit of *Carica papaya* with other substances, chemists have failed to find papain or to determine the digestive power of the tablets. Bell-ans is essentially a tablet of sodium bicarbonate and ginger, and has all of the virtues, which are few, and all of the limitations, which are many, of a tablet of sodium bicarbonate and ginger. The Council on Pharmacy and Chemistry examined Bell-ans nearly eight years ago, and the statements made in that report are as incontrovertible today as they were then (*Jour. A. M. A.*, Nov. 24, 1917, p. 1815).

The Handicap of Proprietorship in Medicine.—Dr. J. J. Mundell protests because his article on the present status of pituitary extract in labor was abstracted in "Therapeutic Notes" in a way which appears to him a gross misrepresentation of his attitude toward the use of pituitary extract. Being a house organ, "Therapeutic Notes" contained only those portions of Mundell's article which may be expected to promote the firm's proprietary pituitary preparation. The references to the dangers and the limitations of pituitary extracts were not abstracted (*Jour. A. M. A.*, Nov. 24, 1917, p. 1818).

Salvarsan, etc.—Besides the German salvarsan and neosalvarsan, now practically unobtainable, the Council on Pharmacy and Chemistry has recognized diarsenol, neodiarsenol and arsenobenzol (Dermatologic Research Laboratories). It has under consideration salvarsan made by the Farbwerke-Hoechst Company, New York. Before accepting these preparations, the Council requires evidence to show that the products are manufactured under supervision which may be expected to insure their chemical identity and uniformity, and freedom from toxicity. However, in the past, untoward effects have been reported from German salvarsan and neosalvarsan, particularly with the last shipments of neosalvarsan. Recently untoward effects have been reported from neodiarsenol. It is expected that with a short time all salvarsan, neosalvarsan and

the various products identical with these will be tested by the Government (*Jour. A. M. A.*, Nov. 24, 1917, p. 1819).

Ammonol.—The *New York Medical Journal* advertises Ammonol as "The Stimulant, Ethical Antipyretic and Analgesic." There we learn, in part, that this very ordinary mixture of acetanilid, ammonium carbonate and sodium bicarbonate is "a specific in Fevers, Neuralgia, Atonic Dyspepsia, Pneumonia, Gastralgia, Bronchitis, Coryza, Catarrhal Influenza, La Grippe, Rheumatism, Hysteria, Alcoholism, Amenorrhea, Dysmenorrhea, Uterine and Intestinal Colic, Obstinate Vomiting, Catarrh of the Bile Ducts and Jaundice." (*Jour. A.M.A.*, Sept. 22, 1917, p. 1010).

Fake Neosalvarsan.—The Department of Health of the City of New York has prepared a table whereby the spurious "neosalvarsan," recently located there may be identified. The department urges physicians to destroy all salvarsan and neosalvarsan containers after use of the drug, to prevent illegitimate use of these containers. (*Jour. A.M.A.*, Sept. 22, 1917, p. 1021).

Wheeler's Tissue Phosphates.—A leaflet devoted to the exploitation of Wheeler's Tissue Phosphates approvingly quotes the criticisms of the hypophosphites and the glycerophosphates by the *Journal A.M.A.* However, the leaflet fails to quote the *Journal's* estimate of the Tissue Phosphates" which was: "Wheeler's Tissue Phosphates" is an unscientific shotgun mixture whose most active and powerful drug is the alcohol it contains. That it was not years ago relegated to the realms of obsolete and discarded preparations in a commentary alike on the lack of scientific discrimination and on the power of advertising." (*Jour. A.M.A.*, Sept. 22, 1917, p. 1010.)

American-Made Synthetics.—The Council on Pharmacy and Chemistry announces that, with the aid of the A. M. A. Chemical Laboratory, it proposes to make a study of the quality of American-made synthetics. This control of synthetic drugs, which as a result of the war are now made in this country, is believed to be in the interest of the American industry, for the protection of the public and for the satisfaction of physicians. Since the manufacture of some of the synthetic drugs is to some extent experimental in this country, the Council feels confident that the responsible manufacturer will welcome this study as the best way of establishing complete confidence in his products. (*Jour. A.M.A.*, Sept. 22, 1917, p. 1018).